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ARMSTRONG
LABORATORY

**WASTEWATER CHARACTERIZATION SURVEY,
O'HARE INTERNATIONAL AIRPORT (IAP)—
AIR RESERVE STATION, ILLINOIS**

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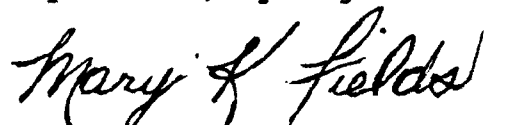
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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS.....	v
INTRODUCTION.....	1
DISCUSSION.....	1
Background.....	1
Permit Standards.....	2
Site Selection and Analytical Parameter Selection...	2
Sampling Methods.....	2
Field and Laboratory Quality Assurance/Quality Control (QA/QC).....	3
Internal QA/QC.....	4
RESULTS.....	5
Analytical Parameters	5
Sampling Sites.....	5
QA/QC Results.....	7
QA/QC Procedure for pH and Temperature Determination.....	8
Volatile Organic Chemical Results.....	8
Metal Results.....	9
Other Results.....	10
BOD Results.....	11
pH Results.....	11
Oil/Water Separator Results.....	11
CONCLUSIONS.....	11
RECOMMENDATIONS.....	11
REFERENCES.....	12
APPENDIX A: REQUEST LETTER.....	13
APPENDIX B: SEWAGE AND WASTE CONTROL ORDINANCE OF GREATER CHICAGO.....	17
APPENDIX C: SAMPLING STRATEGY.....	47
APPENDIX D: SAMPLING METHODS.....	51
APPENDIX E: SAMPLING DATA RESULTS.....	53
APPENDIX F: QUALITY ASSURANCE/QUALITY CONTROL.....	73
APPENDIX G: STANDARDS FOR VOLATILE ORGANIC CHEMICALS....	79

APPENDIX H:	TYPICAL DISCHARGE LIMITATIONS FOR VARIOUS WASTE SOURCES.....	81
APPENDIX I:	pH AND TEMPERATURE DATA.....	85
APPENDIX J:	OIL/WATER SEPARATOR CONTRACT EXAMPLE.....	87
APPENDIX K:	BOD RESULTS.....	89

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WASTEWATER CHARACTERIZATION SURVEY,

O'HARE INTERNATIONAL AIRPORT (IAP) - AIR RESERVE STATION, ILLINOIS

INTRODUCTION

A wastewater characterization survey was conducted at O'Hare International Airport (IAP) - Air Reserve Station from 13-24 April 1992 by personnel of the Water Quality Function of the Armstrong Laboratory (AL). The purpose of this survey was to identify and characterize the wastewater. This survey is required by Air Force Manual (AFM) 91-32. The station's failure to have a survey performed was recently cited as a major deficiency finding during an external Environmental Compliance Assessment Management Program (ECAMP) audit of the installation.

The survey was performed in response to a request from 928th Medical Squadron/SGPB to perform a wastewater characterization at O'Hare Air Reserve Force Facility Reserve, IL (Appendix A).

Armstrong Laboratory personnel performing the survey included: 1Lt Anita Acker (Team Chief), TSgt Mary Fields (Team NCOIC), and SSgt Robert Davis (Technician).

DISCUSSION

Background

O'Hare IAP - Air Reserve Station covers approximately 400 acres of land in the northeast corner of the O'Hare International Airport. The main gate is located west of the intersection of Mannheim and Higgins Road. The 928th Tactical Airlift Group, comprised of 12 squadrons and flights, plus group headquarters, is the host organization at the O'Hare Air Reserve Station. As O'Hare Air Reserve Station host, the group supports 10 large tenant organizations and several smaller units. These tenant organizations include: Headquarters, Illinois Air National Guard (ANG); 126th Air Refueling Wing; 217th Electronic Installation Squadron; 264th Combat Communications Squadron; 566th Air Force Band; Aeronautical System Division; Defense Contract Management District North Central; U.S. Army Reserve, Fort Dearborn, IL; Civil Air Patrol; and a number of small regional offices of other governmental agencies.

The 928th Tactical Airlift Group has more than 2,000 reservists assigned and more than 450 Air Reserve technicians and civilians. The group employs approximately 4,300 people in defense-related positions.

Wastewater treatment is accomplished by The Metropolitan Water Reclamation District of Greater Chicago. The city adheres to the Sewage and Waste Control

Ordinance amended as of 5 September 1991, ordained by the Board of Commissioners of The Metropolitan Water Reclamation District of Greater Chicago. Its purpose is the protection of the public health and safety by abating and preventing pollution through the regulation and control of quantity and quality of sewage, industrial wastes, and other wastes admitted to or discharged into the sewerage systems, sewage treatment facilities, and waters under the jurisdiction of the District.

Permit Standards

Wastewater discharges from the base are regulated by The Metropolitan Water Reclamation District of Greater Chicago (Appendix B). This sewage and waste control ordinance lists the maximum concentrations that are acceptable for discharge of sewage, industrial wastes, or other wastes into sewerage systems.

Site Selection and Analytical Parameter Selection

A presurvey was conducted from 4-6 March 1992 by 1Lt Acker. During this presurvey the sampling strategy was developed as follows:

1. Applicable permitted wastewater discharges were reviewed (i.e., National Pollution Discharge Elimination System). Discussions were also held with the station Bioenvironmental Engineer and the Environmental Coordinator to review historical discharge information to include any pertinent discharge problems.
2. A G-2 Sewerage System Master Plan map was used to locate all of the industrial facilities along with the manhole which serviced the facility and determination of other contributing waste streams.
3. The industrial facility's function, chemical usage, and chemical disposal procedures were reviewed, and site and manhole assessments were conducted.
4. Utilizing this information, twelve sites were selected and analytical parameters were developed to characterize the station's waste stream. The final strategy was reviewed and approved by the station Bioenvironmental Engineer and Environmental Coordinator. The strategy can be found in Appendix C, along with an installation map depicting the location of each site.

Sampling Methods

Wastewater samples were typically collected over a 24-hour period as a time-proportional composite. All designated sampling sites were analyzed for metals and volatile organics carbons, but only selected sites were analyzed for: oil and grease, ammonia-nitrogen, cyanide, total petroleum hydrocarbons, total toxic organics, phenol, surfactants, and residue (dissolved, total, and vola-

tile). Temperature and pH were recorded each day a sample was collected. Any unusual characteristics (color, odor, etc.) of the samples were recorded as well. All samples were collected and analyzed using Environmental Protection Agency (EPA) approved procedures. Sample preservation was in accordance with the Air Force Occupational and Environmental Health Laboratory (AFOEHL) Sampling Guide, March 1989 (1). Appendix D lists the method, preservation, and holding times for each type sample.

Composite samples were poured directly from the sampler's 10-liter (2.5-gal) glass collection jar into sample containers in the field. Samples were then preserved upon returning to the on-site laboratory set up in the Civil Engineering warehouse. Grab samples were captured directly from the waste stream and poured into the appropriate container on-site. These samples were also preserved as needed upon return to the on-site laboratory.

Field and Laboratory Quality Assurance/Quality Control (QA/QC)

A field QA/QC program was used during this survey to verify the accuracy and/reproducibility of laboratory results. The following is a summary of QA/QC samples performed by the analytical laboratory to validate the integrity of the regular samples collected:

Equipment Field Blank Samples. Equipment field blank samples are collected by pumping a liter of laboratory-grade distilled water through the pump/purge cycle of the sampler into the appropriate sample container. Preservation is then accomplished. This series serves as a check on cross contamination from mechanisms of the sampler which have the remote possibility of leaching contaminants into the sample.

Pitcher Blank Samples. A stainless steel pitcher is used to transfer samples directly from the automatic sampler's collection jar to appropriate sampling containers. The pitcher blank samples are collected by pouring a liter of laboratory-grade distilled water into a pitcher and allowing five minutes to elapse prior to pouring samples into the appropriate sample containers. The preservation methods and the purpose of sampling are the same as the equipment field blank. Results are located in Appendix F.

Reagent Blank Samples. Reagent blank samples are collected by filling the appropriate analysis sample container with laboratory-grade distilled water and placing the preservative into the container. This series serves as a check on the purity of the reagents used and elimination of any preservative contributing to false analytical results.

Spike Samples. Spike samples are collected by filling the appropriate sample container with laboratory-grade distilled water and adding a known quantity of an analytical parameter and preserving as appropriate. This series of samples in conjunction with Armstrong Laboratory Analytical Services Division Quality Assurance Plan serves as a check on the sample collection, preservation, and reproducibility of analytical results. Spike samples are prepared on-site using commercially purchased, certified-value quality-control standards prepared by Environmental Resource Associates (ERA). Certified values are equal to 100%

of each parameter in the indicated standard. Advisory ranges are listed as guidelines for acceptable recoveries given the limitations of the EPA methodologies commonly used to determine these parameters.

Duplicate Samples. Duplicate samples are 2 discrete samples taken from the same source, and analyzed independently. These samples serve as a measure of precision, which is the agreement between a set of replicate measurements without assumption or knowledge of the true value. Duplicate samples were collected at sites #8 and #12. The samples were collected at site #8 on the third and sixth days of sampling. A duplicate sample was collected at site #12 on the first day of sampling. Duplicate samples can differ greatly due to the amount of solids in the collection jar not being dispersed evenly in each sample. All volatile organic samples were also collected in duplicate as part of our Analytical Services Division internal QA/QC program.

Internal QA/QC

The Armstrong Laboratory Analytical Services Division Quality Assurance Plan establishes the guidelines and rules necessary to meet the analytical laboratory requirements of 43 states, U.S. Environmental Protection Agency, and private accrediting agencies. Specific activities include: (a) inserting a minimum of one blind sample control for each parameter analyzed on a monthly basis, (b) periodic auditing of the laboratory quality assurance items from each branch, (c) all instruments are calibrated each day of use, (d) at least one National Institute Standards and Technology/Standard Reference Materials (NIST/SRM) traceable standard and control sample will be included with each analytical run, (e) corrective action is documented every time a quality assurance parameter is not met, (f) all sample data will have established detection limits, (g) the laboratory participates in numerous proficiency surveys and interlaboratory quality evaluation programs, and (h) all quality control samples are plotted and tracked by the individual analytical section. Quality assurance is also mandatory for all contracted analytical services and is validated on a periodic basis by Armstrong Laboratory personnel. A copy of the Armstrong Laboratory Analytical Service Division's QA/QC result for cyanide is provided in Appendix F.

According to Mrs. Jeri Long of the Illinois Environmental Protection Agency, current cost constraints for the State of Illinois preclude certification of wastewater laboratories. Therefore, results from Armstrong Laboratory and its contract laboratories are considered valid and acceptable to the State of Illinois.

RESULTS

Results of all data collected during this survey are given in Appendix E.

Analytical Parameters

The following table shows grab and composite parameters. If a sample was collected differently from this method, it is noted in the comments section under each site. For some samples, low flow resulted in part of a sample being a grab because of the limited volume.

PARAMETERS, GROUP, GRAB/COMPOSITE, AND CONTAINERS

<u>Parameter Name</u>	<u>Grab/Composite</u>	<u>Container</u>
Group A Ammonia-Nitrogen	Composite	Plastic
Group A Oil & Grease Total Petroleum Hydrocarbons	Grab	Glass
Group D Cyanide	Composite	Plastic
Group F Metals	Composite	Plastic
Group E Phenol	Composite	Plastic
Group G Fluoride	Composite	Plastic
Residue, Total	Grab	
Residue, Filterable	Grab	
Residue, Volatile	Grab	
Surfactants-MBAS	Grab	
<u>Method 601/602</u>	<u>Grab</u>	<u>40 ml vial</u>

Sampling Sites

Site 1

Manhole 540. This site is located on Crome Road behind the Clinic, building 504. This site contains waste from the Clinic. Samples were collected on the 15th, 16th, and 17th of Apr 92.

Comments: 15 Apr 92, Groups A, D, and F were grab

Site 2

Manhole 522. This site is located in the parking lot of the Fire Department. Samples were collected on the 21st, 22d, and 23d of Apr 92.

Site 3

Manhole 537. This site is located in the middle of Johnson Road, near building 500. This site includes waste from the ANG's photolab located in building 500. Samples were collected on the 15th, 16th, and 17th of Apr 92.

Comments: 15 Apr 92, Groups A, D, and F were grab

Site 4

Manhole 548. This site is located on the corner of Dixon Blvd and Patton Road. Samples were collected on the 21st, 22d, and 23d of Apr 92.

Site 5

Manhole 587. This site is located on the flightline across from the Jet Engine Shop, building 70. This site samples waste from the fuel cell. Samples were collected on the 15th, 16th, and 17th of Apr 92.

Comments: 16 and 17 Apr 92, Group F was grab

Site 6

Manhole 560. This site is located on Newhall Street in front of the Non-Destructive Inspection Shop, building 519. Samples were collected on the 15th, 16th, and 17th of Apr 92.

Comment: 15 Apr 92, Groups A, D, and F were grab

Site 7

Manhole 579. This site is located next to the Guard Hangar, building 19. Due to extremely low flow at this site, no samples were taken.

Site 8

Manhole 501. This site is located in the parking lot of building 4. This site is the location where all the waste from the base leaves its premises and enters The Metropolitan Water Reclamation District of Greater Chicago. Samples were collected on the 15th, 16th, 17th, 18th, 21st, and 22d of Apr 92.

Site 9

Manhole 589. This site is located on the flightline behind the Corrosion Control Shop, building 31, which is the main contributor. Samples were collected on the 15th, 16th, and 17th of Apr 92.

Site 10

Manhole 554. This site is the wet well located south of the 928th Support Group, building 40. This site gathers waste from the Avionics Lab, the ANG Civil Engineering complex, and the AFR Civil Engineering administration buildings. Samples were collected on the 15th, 16th, and 17th of Apr 92.

Comments: 15 and 17 Apr 92, Group F was grab

Site 11

Manhole 546. This site is located on Willholt Road near the Air Force Reserve Motor Pool, building 50, which is the main contributor. Samples were collected on the 21st, 22d, and 23d of Apr 92.

Comments: 21 and 22 Apr 92, Groups E, F, and G were grab

Site 12

Manhole 557. This site is located on Willholt Road near the Air Force Reserve Civil Engineering Complex, building 10, its main contributor. Samples were collected on the 21st, 22d, and 23d of Apr 92.

QA/QC Results

All field QA/QC results are in Appendix F. The results of the reagent blanks indicate the reagents were not a source of contamination. Equipment and pitcher field blanks indicated there were no cross contamination from mechanisms within the sampler.

The duplicate results for oils and greases, solids, and volatile organics were evaluated using a +/- 30% acceptable range. This wide range was used due to the variability of the waste stream during the collection phase and the probability that identical constituents would not be found between the primary and duplicate sample. The duplicate results from site 8 for oils and greases, volatile organics, and solids greatly exceeded the 30% variability range. It is well within the realm of possibility, this was due to the aforementioned reasons.

The spike sample results, with the exceptions of beryllium and phenols, were not within the advisory range. Regrettably, this has been a recent problem and is currently being examined closely by the analytical chemists and the commercial supplier of the spikes. In the absence of this data, QA/QC results from the actual analytical run are being provided in Appendix F.

QA/QC Procedure for pH and Temperature Determination

The pH and temperature were taken each day from each sampling site. The pH and temperature determination was accomplished with a combination pH and temperature meter. The following are QA/QC procedures for pH and temperature determination:

1. Prior to the survey all meters are checked and, if necessary, calibrated by Armstrong Laboratory medical maintenance.
2. Each day a meter is used, the model, serial and/or identification numbers are logged on the Sample Collection Site Information Log.
3. The pH meter is calibrated against a standard buffer solution of known pH value at the start and end of a sampling run. Quality control measures are done to insure the buffer solutions yield the proper value.
4. The temperature portion of the meter is standardized against a thermometer which conforms to the designation specified by the American Society of Testing Materials.
5. Before and after the meter is used, the meter's probes are rinsed with distilled sterile water.

Volatile Organic Chemical Results

The Volatile Organic Chemical (VOC) screen measures the concentration of a number of volatile compounds. Comparisons have been done with the following criteria for VOCs in water: (a) standards set forth by the Safe Drinking Water Act (SDWA); (b) the Quality Criteria for Water; and (c) the National Pollutant Discharge Elimination System (NPDES) Industrial Pretreatment Standards (Appendix G). It should be noted that when the standards are applied to wastewater, none of these criteria are currently enforceable on federal facilities under Federal law.

The SDWA, promulgated in 1976, authorized the EPA to establish regulations and conduct studies concerning safe levels of contaminants in drinking water. The contaminant concentrations permitted under the SDWA represent maximum concentrations of contaminants under which it is believed that no adverse health effects will occur in the general population.

The Quality Criteria for Water document was developed to comply with Section 304(a) of the Clean Water Act. These criteria reflect the latest scientific knowledge: (a) on the kind and extent of all identifiable effects on health and welfare to plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, aesthetics, and recreation which may be expected from the presence of pollutants in any body of water including ground water; (b) on the

concentration and dispersal of pollutants, or their by-products, through biological, physical, or chemical processes; and (c) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and organic and inorganic sedimentation for varying types of receiving waters. These criteria are not rules, and they do not have regulatory impact. Rather, these criteria present scientific data and guidance concerning the environmental effects of pollutants which can be useful to derive regulatory requirements based on considerations of water quality impacts (2).

The Industrial Pretreatment Standards, which fall under the NPDES permitting program, impose general prohibitions on industrial dischargers to Publicly Owned Treatment Works (POTW) and specific prohibitions on industrial dischargers which fall into specific categories of industries (3). These categorical standards were adopted by the Board of Commissioners as its performance criteria for discharge to sewers under The Metropolitan Water Reclamation District of Greater Chicago.

Appendix E shows the results of the VOC sampling done during this survey. Measured concentrations of bromodichloromethane, bromoform, chloroform, and chlorodibromomethane are commonly found in municipal sewage as disinfection by-products. The only disinfectant by-product found in the sewer was chloroform at sites #2, #3, and #4. The total concentrations of this contaminant never exceeded the SDWA criteria of 100 µg/l.

In general, the VOC concentrations measured during this survey were low and indicate a minor impact of industrial operations on the quality of the wastewater. Only two sites, #2 and #4, showed VOC concentrations above The Industrial Pretreatment Standards for Organic Chemical Manufacturing, shown in Appendix G. All other sites showed no VOC concentrations exceeding the Water Quality Standard, the SDWA, or the Industrial Pretreatment Standards.

Tetrachloroethylene was found at site #4 (one day) at 7 µg/l. Tetrachloroethylene is a common dry cleaning solvent used in the cold cleaning and degreasing of metals (4). Since this lone result is near the detection limit, it is most likely an artifact of the analytical procedure.

Concentrations of toluene in excess of the 28 µg/l Pretreatment Standard were found at site 2 (one day) at 33 µg/l. Toluene is used in lead-free gasoline; as a starting material in the production of benzene and other chemicals; and as a solvent for paints, coatings, gums, oils, and resins (5). Due to the small concentrations of toluene found at the ANG and AFRES maintenance areas, the possibility exists that toluene is being washed down the drain.

Metal Results

The Sewage and Waste Control Ordinance of The Metropolitan Water Reclamation District of Greater Chicago establishes maximum concentrations acceptable for discharge of sewage, industrial wastes, or other wastes into sewerage systems under the jurisdiction of the District at any time. This ordinance applies to site #8, where the base's sewage enters the jurisdiction of the District of Greater Chicago. Discharges of industrial facilities on the

base were compared to pretreatment standards in 40 CFR 403-471 and to an 1988 AFOEHL Report, Design Criteria for Process Wastewater Pretreatment Facilities (6). Appendix H lists the typical discharge limitations for various waste sources. All metal results are for the total dissolved and suspended form of the sampled metal.

In general, the metal concentrations in the raw wastewater showed low levels of contamination. Considering the concentrations of metals measured at site #8, it can be clearly seen that no criteria standards were exceeded.

The levels of metals at other sites were compared to the Industrial Pretreatment Standards (3), since these are the most applicable standards to apply to raw untreated sewage. No levels measured during this survey exceeded these standards.

Other Results

Several other analyses were conducted to characterize the quality of the wastewater.

The results of the ammonia-nitrogen sampling show that the concentrations of ammonia-nitrogen in the wastewater from sites 1, 3, and 6 range between 4.4-62.4 mg/l. Ammonia-nitrogen is not a regulated contaminant in the Sewage and Waste Control Ordinance of Chicago, but it is regulated under the pretreatment standards for industrial processes. No site exceeded these standards. The results of cyanide sampling show that the levels of cyanide on the base are very low, from below the detection limit to 0.032 mg/l. Again, no site exceeded the pretreatment standards or the Sewage and Waste Control Ordinance of Chicago.

Total petroleum hydrocarbons (TPH) and oils and greases analyses were performed to estimate the amount of hydrocarbons in the wastewater that originate from petroleum sources. According to the Sewage and Waste Control Ordinance of Chicago, no site exceeded their limit.

The results of the phenol sampling show that the concentration of phenol on the base range from below the detection limit to 12 µg/l. The results of the surfactant sampling show that the concentration of surfactants on the base ranges from below the detection limit to 0.3 mg/l. These results indicate that the levels of phenols and surfactants are very low. The discharge of these quantities of contaminants into The Metropolitan Water Reclamation District of Greater Chicago does not exceed their maximum concentrations.

Analyses were also performed at site #8 to determine the concentration of Total Toxic Organics (TTOs) in the wastewater leaving the base and entering into The Metropolitan Water Reclamation District of Greater Chicago. A TTO, as defined by EPA (7), is the summation of all quantifying concentrations greater than 0.01 mg/l for 78 organic chemicals. The sum of the quantifying concentrations must not exceed 2.13 mg/l. The results of the TTO analyses (for other than VOCs) are shown in Appendix E. These results must be used with the results of the VOC sampling to determine the quantitative concentration. No concentrations of these chemicals exceeded 0.01 mg/l. Therefore, the TTO result for this site is 0 mg/l.

BOD Result

A 5-day Biochemical Oxygen Demand (BOD) sample was taken from site #8 on 23 April 92. The 5-day BOD is an empirical test in which the relative oxygen of wastewater is determined over a 5-day period. Although only one sample was taken for 5-day BOD analysis, the result of 84 mg/l was indicative that the wastewater is primarily domestic with little to no industrial influences. The result of the analysis is shown in Appendix K.

pH Results

The pH of every sample was recorded and can be found in Appendix I. All ranges were between six and eight, which is normal for sanitary sewage and falls in the range set by the city of Chicago.

Oil/Water Separator Results

Due to an existing contract, no oil/water separators were sampled. Appendix J contains an example of a laboratory report obtained from Environmental Monitoring and Technologies, Inc. The contract calls for a composite sample of all the oil/water separators on the station to be analyzed. Once the sample is analyzed and no regulatory limits are exceeded, the company pumps out all separators and properly disposes of the waste.

CONCLUSIONS

Low levels of VOCs, total metals, phenols, surfactants, and oil and greases indicate that good shop practices are being followed on the base and that indiscriminate discharge of industrial wastes into the sanitary sewer system is not occurring. Discharges from the shops on the base that perform industrial processes met all the applicable pretreatment standards set by The Metropolitan Water Reclamation District of Greater Chicago.

The sampling data is considered typical wastewater stream discharge from an Air Force base, according to a USAFOEHL Report (6).

The field QA/QC from this survey indicate there was no contamination from the equipment nor the reagents used for preservation.

The analytical results for the metal and cyanide spikes indicate a problem; however, QA/QC data from the actual analytical run demonstrated high recovery indicative of precision and accuracy of the results for cyanides and metals. The laboratory performed analyses in accordance with U.S. EPA and the State of Illinois approved methodology.

RECOMMENDATIONS

O'Hare IAP - Air Force Reserve Station should continue their efforts to maintain proper waste disposal. Personnel should be commended for the negligible contamination of the wastewater discharged from the base, indicative of good shop practices to minimize the disposal of industrial waste through the sanitary sewer system.

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APPENDIX A
REQUEST LETTER

*TO OEB for response/
action
JCM*

DEPARTMENT OF THE AIR FORCE
928TH MEDICAL SQUADRON / SGPB
O'HARE AIR RESERVE FORCES FACILITY, ILLINOIS 60666-5000

20 Sept 91

REPLY TO
ATTN OF: SGPB/D. Pfaendner

SUBJECT: Request for Waste Water Survey

TO: HQ AFRES/SGB *Comp 30 Sep 91*
AL/OE *JCM 2 Oct 91*
IN TURN *or*

TO MAJ GARLAND

1. We would like to request the services on the Armstrong Laboratory's Bioenvironmental Engineering Division (AL/OEB) to perform an industrial waste water survey for the 928th Tactical Airlift Group at Chicago O'hare Air Reserve Forces Facility, Illinois. This survey is required by AFR 91-32 and was recently cited as a major deficiency finding during the external Environmental Compliance Assessment Monitoring Program (ECAMP) audit of this installation.

2. During the ECAMP audit, it was identified that several buildings with industrial operations use chemicals which have the potential for entering the sanitary sewer system. The Illinois State Code (35 Ill Admin. Code 310-210) states that every industrial facility must provide "Affirmative Defense" against discharges that may interfere with Public Owned Treatment Works (POTW) operations. Conducting an industrial waste water survey was recommended as part of our ECAMP to satisfy both Air Force and State Requirements. We envision this survey would also include tracer dye studies.

3. Preliminary discussion have been held with Maj. Garland, AL/OEB, concerning this request. We would request this survey to be conducted as soon as possible within your current schedule of facilities requesting this service. The points of contact at 928 TAG are Ms. Dolores Pfaendner, 928 CSS/SGPB, DSN 930-6783, and Mr. Jim Oprzedek, 928 CSS/CEEV, DSN 930-6117. We appreciate your assistance in supporting this request.

Dolores Pfaendner

DOLORES PFAENDNER, RN
Occupational Health Nurse
Military Public Health

cc: HQ AFSC/SGP
CSS/CC
CEEV

Approved/Disapproved

Franklyn Senft

COL. FRANKLYN SENFT, Colonel, USAF
Base Commander

APPENDIX B

SEWAGE AND WASTE CONTROL ORDINANCE OF GREATER CHICAGO

The Metropolitan Water Reclamation District of Greater Chicago



SEWAGE AND WASTE CONTROL ORDINANCE AS AMENDED SEPTEMBER 5, 1991

AN ORDINANCE

AN ORDINANCE TO PROVIDE FOR THE ABATEMENT AND PREVENTION OF POLLUTION BY REGULATING AND CONTROLLING THE QUANTITY AND QUALITY OF SEWAGE AND INDUSTRIAL WASTE ADMITTED TO OR DISCHARGED INTO THE SEWERAGE SYSTEMS AND WATERS UNDER THE JURISDICTION OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO, HEREINAFTER TO BE KNOWN AS "THE SEWAGE AND WASTE CONTROL ORDINANCE" ADOPTED BY THE BOARD OF TRUSTEES OF THE METROPOLITAN SANITARY DISTRICT OF GREATER CHICAGO ON SEPTEMBER 18, 1969; AND AS AMENDED TO AND INCLUDING FEBRUARY 24, 1972; OCTOBER 2, 1975; JANUARY 19, 1978; OCTOBER 12, 1978; NOVEMBER 6, 1980; APRIL 21, 1983; SEPTEMBER 6, 1984; SEPTEMBER 5, 1985; JULY 30, 1987; JANUARY 21, 1988; MARCH 10, 1988; JULY 7, 1988; SEPTEMBER 7, 1989; DECEMBER 6, 1990; AND SEPTEMBER 5, 1991.

**METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO**

100 East Erie Street
Chicago, Illinois 60611
(312) 751-5600

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George H. Wahl, *Purchasing Agent*

BE IT ORDAINED by the Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago: That the Sewage and Waste Control Ordinance, originally passed by the Board of Trustees of The Metropolitan Sanitary District of Greater Chicago on September 18, 1969, and as amended, is herewith and now comprehensively amended to read as follows:

ARTICLE 1

Purpose

This Ordinance, promulgated by the Metropolitan Water Reclamation District of Greater Chicago, hereinafter called the "District," pursuant to the authority vested in it by the Illinois legislature, has as its purpose the protection of the public health and safety by abating and preventing pollution through the regulation and control of the quantity and quality of sewage, industrial wastes, and other wastes admitted to or discharged into the sewerage systems, sewage treatment facilities and waters under the jurisdiction of the District.

ARTICLE II

Definitions and Abbreviations

The meaning of the terms used in this Ordinance shall be as follows:

"Administrator" shall mean the Administrator of the United States Environmental Protection Agency.

"Applicable pretreatment standard" means any criteria, limitation or prohibition upon the discharge of any pollutant into a publicly owned treatment works.

"Approval Authority" shall mean the Regional Administrator of the United States Environmental Protection Agency or the Illinois Environmental Protection Agency, if so designated by the Regional Administrator.

"Authorized representative" means an owner or corporate officer of the industrial user authorized to legally bind the user in any and all negotiations and agreements.

"Baseline monitoring report" or "BMR" shall mean a form supplied by the District for reporting by an industrial user on the nature of the industrial user's operations and discharge of pollutants to the water reclamation facilities of the District.

"Board of Commissioners" or "Board" means the Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago.

"Categorical pretreatment standards" or "CPS" means any effluent limitation or standard applicable to an industrial category promulgated by the USEPA.

"Code of Federal Regulations" or "CFR" shall mean the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the United States Government.

"Combined waste stream formula" shall mean the formulae contained in 40 CFR 403.6(e) for calculating alternative concentration limits or alternative mass limits for determining compliance with categorical pretreatment standards.

"Composite sample" means a representative mixture of a minimum of three grab sample aliquots obtained over a period of time.

"Control authority" shall mean the Metropolitan Water Reclamation District of Greater Chicago upon said designation by the Regional Administrator.

"Control manhole" or "sampling chamber" means a device or structure suitable and appropriate to permit sampling and flow measurement of a wastewater stream to determine compliance with this Ordinance.

"Discharge Authorization" or "DA" means the document issued by the District to a significant industrial user granting permission to discharge process wastewater into the sewerage system of the District.

"Discharge Authorization Request" or "DAR" means the document submitted by a significant industrial user, on forms supplied by the District, requesting permission to discharge process wastewater into the sewerage system of the District.

"Existing source" shall mean any point source whose operation commenced prior to the date of proposal by the USEPA of any applicable categorical pretreatment standard in the Federal Register.

"Federal Register" shall mean the publication of the executive departments of the United States Government.

"Flow" means the volumetric measure per unit of time of wastewater, water, industrial waste or other flow.

"Fundamentally different factors" shall mean factors pertaining to the nature of an industrial user's operations which are fundamentally different from the factors considered by the USEPA in development of an applicable categorical pretreatment standard.

"Garbage" means solid wastes from the preparation, cooking and dispensing of food, and from the handling, storage or sale of meat, fish, fowl, fruit, or vegetables and condemned food.

"General pretreatment standards" or "GPS" means the standards contained in Appendix B of this Ordinance which are applicable to all discharges into sewerage systems tributary to water reclamation facilities.

"General Superintendent" means the General Superintendent of the Metropolitan Water Reclamation District of Greater Chicago.

"Grab sample" means a single aliquot sample.

"Hazardous waste" means any industrial waste, production residue, sewage or sludge which is classified as a hazardous waste pursuant to 40 CFR 261.

"Illinois Environmental Protection Agency" or "IEPA" means the Environmental Protection Agency of the state of Illinois.

"Illinois Pollution Control Board" or "IPCB" means the Pollution Control Board of the state of Illinois.

"Incompatible pollutant" shall mean a pollutant or waste characteristic which causes, or has the potential to cause, interference with the operation of a water reclamation facility or which is not amenable to treatment by a water reclamation facility and passes through such a water reclamation facility and is contained in the discharged final effluent.

"Industrial user" or "IU" means a person who conducts any industrial, manufacturing, agricultural, trade or business process or who conducts the development, recovery or processing of natural resources.

"Industrial waste" means all solid, liquid or gaseous waste resulting from any industrial, manufacturing, agricultural, trade or business process or from the development, recovery or processing of natural resources.

"Intake water adjustment" shall mean the adjustment of a categorical pretreatment standard to reflect the presence of a pollutant in a user's intake water.

"Interference" means a discharge which alone or in conjunction with a discharge or discharges from other sources inhibits or disrupts the normal operation of any treatment processes, including sludge processes, use or disposal, which causes a violation of any requirement of a NPDES permit or other permit issued to the District by the IEPA or the USEPA.

"National Pollutant Discharge Elimination System" or "NPDES" means the permit and regulation system governing direct discharges into navigable waters administered by the IEPA and USEPA.

"New source" shall mean any industrial point source of pollutants for which the construction or installation of process facilities or the housing for containing process facilities commenced on or after the date of proposal of regulations in the Federal Register of any applicable categorical pretreatment standard for pollutants which applies to said source.

"Other wastes" means all decayed wood, sawdust, shavings, bark, lime, refuse, ashes, garbage, offal, oil, tar, chemicals and all other substances except sewage and industrial wastes.

"Pass-through" means a discharge which exits the District's water reclamation facilities into waters in quantities, or concentrations which, alone or in conjunction with a discharge or discharges from other sources, causes a violation of any requirement of a NPDES permit or other permit issued to the District by the IEPA or the USEPA.

"Person" means any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, unit of government, school district, or any other legal entity, or its legal representative, agent or assigns.

"Pollution" means the discharge of a substance, set forth in Appendices A, B and C hereto, to any waters, sewer, or other facility under the jurisdiction of the District, in excess of those quantities or strengths permitted by said Appendices A, B and C hereto or in a manner contrary to that set forth herein. The discharge of any material or substance hereunder in quantities or strengths greater than those permitted under Appendices A, B and C hereto or contrary to the manner set forth in this Ordinance shall constitute prima facie "pollution" and no further proof of detriment or harm shall be required by the District in any and all enforcement activities undertaken pursuant to the Ordinance.

"Pretreatment" means any method, construction, device, arrangement or appliance appurtenant thereto, installed for the purpose of treating, neutralizing, stabilizing, disinfecting, or disposing of sewage, industrial waste or other wastes prior to the discharge of such sewage, industrial waste or other wastes into the sewerage system under the jurisdiction of the District, or for the recovery of by-products from such sewage, industrial waste or other wastes.

"Process wastewater" means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product or waste product.

"Production residue" means any liquid, solid, or gas which is residual source material, waste product or production by-product capable of being

disposed in the sewerage system under the jurisdiction of the District.

"Registered Professional Engineer" or "P.E." means a professional engineer licensed by the state of Illinois Department of Registration and Education to practice that profession.

"Sewage" means water-carried human wastes or a combination of water-carried wastes from residences, business buildings, institutions and industrial establishments, together with such ground, surface, storm or other waters as may be present.

"Sewerage system" means sewers, intercepting sewers, pipes or conduits, pumping stations, force mains, constructed drainage ditches, surface water intercepting ditches, and all other constructions, devices and appliances appurtenant thereto used for collecting or conducting sewage, industrial waste or other wastes to a point of treatment or ultimate disposal.

"Significant industrial user" or "SIU" means any person who: (i) is subject to categorical pretreatment standards, or (ii) discharges greater than 25,000 gallons per day of process wastewater to the sewerage system, excluding water-carried human wastes from sanitary conveniences such as toilets, wash bowls, bathtubs, showers and residential laundries, noncontact cooling water, boiler blowdown water and uncontaminated storm water, or (iii) discharges process wastewater in excess of five percent or more of the average dry weather hydraulic or organic capacity of the receiving water reclamation facilities, or (iv) is designated by the District as having a reasonable potential for adversely affecting the operations of the water reclamation facilities or for violating any standard or requirement of this Ordinance.

"Significant violator" means any person who is so designated by the District in accordance with the criteria contained in Appendix E of this Ordinance.

"Sludge" means liquid and precipitated or suspended solid material therein contained, generated from the treatment of water, sewage, industrial waste or other wastes.

"Slug" means any pollutant, released in a discharge at a flow rate and/or concentration which will cause interference or pass through the District water reclamation facilities.

"Standard Methods" means the most recent edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association.

"United States Environmental Protection Agency" or "USEPA" means the Environmental

Protection Agency of the United States Government and its designated agents.

"Water reclamation facilities" means any method, construction, device, arrangement or appliance appurtenant thereto, installed for the purpose of treating, neutralizing, stabilizing, disinfecting, or disposing of sewage, industrial wastes or other wastes, or for the recovery of by-products from such sewage, industrial waste or other wastes.

"Waters" means all accumulations of water, surface and underground, natural or artificial, public or private or parts thereof, which are wholly or partially under the jurisdiction of the District or which flow through the territory of the District.

ARTICLE III

Prohibited Wastes

Section 1. Unlawful Discharges

It shall be unlawful for any person to cause or allow pollution of or the discharge of sewage, industrial wastes, or other wastes of any kind into any waters or sewerage system under the jurisdiction of the District, which does not conform to the criteria or effluent quality standards established and/or adopted by the District, as set forth in Appendices A, B and C hereto of this Ordinance.

It shall be unlawful for any significant industrial user, as defined herein, to cause or allow the discharge of process wastewater into the sewerage system under the jurisdiction of the District in violation of Appendix D of this Ordinance.

Section 2. Waterway Discharge Standards

Effluent quality standards and criteria for discharges into and pollution of waters of the state of Illinois, enacted by the Illinois Pollution Control Board and adopted by the Board of Commissioners of the District, are contained in Appendix A of this Ordinance.

Section 3. General Pretreatment Standards ("GPS")

General pretreatment standards and criteria for discharges into and pollution of sewerage systems tributary to water reclamation facilities of the District, enacted by the Board of Commissioners of the District, are contained in Appendix B of this Ordinance.

Section 4. Categorical Pretreatment Standards ("CPS")

Categorical pretreatment standards for discharges into and pollution of sewerage systems tributary to publicly owned treatment works, promulgated by the United States Environmental Protection Agency, are adopted by the Board of Commissioners for discharges to sewers under the jurisdiction of the District. Where

there is a conflict in the application of general pretreatment standards contained in Appendix B and categorical pretreatment standards listed in Appendix C, the more stringent standard shall apply.

Section 5. New or Increased Pollutant or Flow

No person shall introduce new or increased flow volume, new or increased concentrations or mass loadings of pollutants, changes in the nature of pollutants, or changes in the point of entry of flow or pollutants to the sewerage systems under the jurisdiction of the District which does not conform to the general pretreatment standards, the categorical pretreatment standards, or the information supplied in reports to the District as required in Article V or Appendix C of this Ordinance unless such person shall have notified the District in writing thirty (30) days prior to commencement of such discharge, and shall have received approval of same by the General Superintendent in writing. The District will respond, with approval or denial, within 30 days of receipt of the notification.

Any pollution control equipment necessary to achieve compliance with the District's standards, as specified in Appendices A, B, and C hereof, must be installed prior to commencement of such new or increased discharge.

Section 6. Dilution Prohibition

No person shall increase the use of process water or, in any way, dilute or attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the criteria or effluent quality standards set forth in this Ordinance.

Section 7. Dangerous or Threatening Discharge

Notwithstanding any other remedies which the District may have by statute, common law or this Ordinance, when, in the determination of the General Superintendent, any person's discharge presents an imminent danger to the public health, welfare or safety, presents or may present an endangerment to the environment, or which threatens to interfere with the operation of the sewerage system or a water reclamation facility under the jurisdiction of the District, the District, acting through the General Superintendent, shall apply to the Circuit Court of Cook County for injunctive relief to cease and desist the dangerous or threatening discharge.

Section 8. Uncontrolled or Unregulated Wastes

Each person subject to the terms and conditions of this Ordinance must install and maintain, at its own expense, pretreatment facilities adequate to prevent a violation of the pollutant concentration limits, discharge prohibitions or performance criteria of this Ordinance.

All new industrial users and existing industrial users wishing to introduce new or increased pollutant flows or changes in the nature or concentration of pollutants discharged to the sewerage system must provide all pretreatment facilities required pursuant to this Ordinance prior to the commencement of discharge.

ARTICLE IV

Monitoring Methods and Facilities

Section 1. Compliance Determination:

In order to determine whether or not the sewage, industrial waste or other wastes discharged by any person into any waters or sewerage system conforms to the criteria or water quality standards of the District, the District may use any accepted engineering or scientific practice, method or device which will lead to such a determination. When practicable, all measurements, tests and analyses of the waters, sewage and wastes of any kind shall be conducted in accordance with USEPA approved methods or, in the absence thereof, the latest edition of Standard Methods.

Section 2. Control Manhole/Sampling Chamber— Installation Requirements

Each person subject to the terms of this Ordinance shall install and maintain, at its own expense, a control manhole or sampling chamber for each separate discharge from a non-residential facility, which shall have ample room in each control manhole or sampling chamber to allow the District to perform inspections, sampling, and flow measurement operations. If a building contains more than one industrial user, then each industrial user therein, subject to categorical pretreatment standards, shall install and maintain, at its own expense, a control manhole or sampling chamber for each discharge from its facility, which shall comply with all of the requirements set forth herein. All flows from the facility shall, at all times, pass through a control manhole installed in conformance with this Ordinance and no flows shall be discharged without passing through a control manhole or sampling chamber acceptable to the District. Each such control manhole or sampling chamber shall be accessible to representatives of the District in conformance with the provisions of Article IV, Section 5 of this Ordinance.

Upon direction of the General Superintendent, each such control manhole shall be located outside or near the facility boundary.

Section 3. Right of Access

Representatives of the District may, during reasonable hours of all working shifts of the person, enter upon the premises of each person subject to this Ordinance for the purpose of installing, maintaining and inspecting measurement or sampling devices or facilities, for conducting necessary measuring, gauging

and sampling operations, for inspecting or examining facilities, premises, installations and processes, for inspection and copying of records, and for reviewing pretreatment operating procedures and spill prevention and control plans of such person to determine compliance with this Ordinance or an order of the Board of Commissioners adopted pursuant hereto.

Section 4. Monitoring for Public Hazards

Whenever the General Superintendent determines that a public safety hazard may exist in the discharge from an industrial user to the sewerage system under the jurisdiction of the District, the General Superintendent shall require the industrial user to install suitable devices to detect the presence of the hazardous materials in the discharge and to notify the District immediately in the event of such hazardous discharge.

Section 5. Control Manhole/Sampling Chamber—Access Requirements

Each control manhole or sampling chamber installed and maintained pursuant to this Ordinance shall be safely and directly accessible to representatives of the District at all times, without restriction of any kind.

Access to each control manhole or sampling chamber shall not be obstructed by temporary or permanent construction, manufacturing operations or activities, landscaping, parked vehicles or any other activities of the person.

Any person subject to this Ordinance who has a history of bypass or access to premises violations of this Ordinance, or a history of discharge violations of this Ordinance, may be directed by the General Superintendent to provide a means of unrestricted access, acceptable to the District, for the purpose of sampling at any control manhole or sampling chamber required under Article IV, Section 2 of this Ordinance.

ARTICLE V

Reporting Requirements

Section 1. Volatile/Hazardous Materials

All persons who, at any time, use, consume, produce or store on their business premises, any volatile/hazardous materials as defined herein, shall annually certify, in writing, to the District, the type and estimated quantities of these materials on forms supplied by the District. The annual certified report is to be signed by an authorized representative of the entity on whose behalf the report is being made. Where a significant change in the type or quantity of materials used, consumed, produced or stored on the business premises occurs after an annual report has been filed, a new report must be filed immediately.

Volatile/hazardous materials are those identified as wastes under the Resource Conservation and Recovery Act and defined by the USEPA at 40 CFR 261 or those pollutants under the Clean Water Act identified as priority pollutants and defined by the USEPA at 40 CFR 403 Appendix B.

Section 2. Reporting of Production Residue or Sludge

Each person, subject to the provisions of this Ordinance, shall report to the District, monthly, on forms supplied by the District, each production residue or sludge generated from each and every process, water reclamation plant, wastewater treatment device, and industrial pretreatment device operated or located upon property owned or controlled by said person. Such report shall include the type and quantity of each production residue or sludge, the method of reuse, recycling, reclamation or disposal, and the name and address of the person to whom said production residue or sludge was delivered for transport, reclamation, and/or disposal.

If a production residue or sludge is classified as a Hazardous Waste under the Uniform Hazardous Waste Manifest System, pursuant to regulations promulgated by the United States Environmental Protection Agency under the Resource Conservation and Recovery Act of 1976, and such production residue or sludge is transported from the place of generation with a completed Uniform Hazardous Waste Manifest form as required by those regulations or by the state of Illinois, the identification number of the Uniform Hazardous Waste Manifest form accompanying the production residue or sludge shall be included in the monthly report submitted to the District as required herein.

Those production residues or sludges not classified as hazardous pursuant to the foregoing regulations, or not transported with a completed Uniform Hazardous Waste Manifest form or an Illinois Uniform Manifest form and which contain any contaminants, set forth in Appendices A and B hereto, in concentration or strengths greater than those permitted by Appendices A and B hereof, shall be transported with an Industrial Waste/Sludge Generation Shipment and Disposal Record, supplied by the District, which shall indicate the quantity, volume, and chemical composition of the production residue or sludge and the name and address of the person to whom said production residue or sludge was delivered for transport, reclamation and/or disposal.

Each sludge scavenger and transport and disposal entity to whom such production residue or sludge was delivered for transport, reclamation, and/or disposal, accompanied by an Industrial Waste/Sludge Generation, Shipment and Disposal Record, shall verify in writing his respective receipt and disposition of said production residue or sludge within thirty (30) days of receipt.

Failure to furnish fully completed reports as required hereunder in a timely manner, or failure of any person to complete that portion of said report for which he is accountable, or failure of any person to whom blank report forms hereunder have been delivered to account to the District as to the whereabouts of each and every blank form shall all constitute specific violations of this Ordinance.

Section 3. Category Determination Questionnaire and Facility Classification Questionnaire/ Industrial Category Determination Questionnaire

When so directed by the General Superintendent, each industrial user discharging into the sewerage system under the jurisdiction of the District shall complete and submit to the District within thirty (30) days of receipt, on forms supplied by the District, an "Industrial Category Determination Questionnaire" or "Facility Classification Questionnaire/ Industrial Category Determination Questionnaire."

Section 4. Spill Containment and Notification Requirements Regarding Spills, Malfunctions, Bypasses, and Slug Loadings

Each industrial user having the ability to cause interference or to violate the criteria or effluent quality standards of this Ordinance shall provide protection from accidental discharge to the sewerage system of prohibited materials or other substances regulated by this Ordinance. Facilities to prevent such discharge shall be provided and maintained at the user's own cost and expense. Additionally, each such industrial user must have detailed plans on file at the District showing facilities and operating procedures to provide this protection.

Plans shall be approved by the District prior to construction of the facilities. Such modifications shall not apply to facilities previously approved.

In the event of a planned shutdown or bypass of pretreatment facilities, the user shall notify the Director of the District's Research and Development Department, in writing, at least ten (10) days prior to the beginning of the shutdown or bypass. In the event of a malfunction or an accidental or deliberate discharge resulting in a violation of the criteria or applicable discharge standards of this Ordinance, or in the event of a slug discharge, the user shall notify the District immediately by telephone to the Research and Development Department, Industrial Waste Division (312) 751-3044 during normal business hours or to the Systems Dispatcher (312) 787-3575 at all other times. Said notification shall be confirmed in writing and received by the District within five (5) calendar days explaining the incident and outlining corrective measures to prevent a recurrence.

Section 5. Reports on Discharges to Surface Waters and to the Sewerage System

Persons operating sewage treatment facilities discharging effluents to waters or operating pretreatment facilities discharging to the sewerage system under the jurisdiction of the District shall submit operating reports and laboratory

analyses of discharges as directed by the General Superintendent. When so instructed to submit reports and analyses by the General Superintendent, said person shall maintain copies of all documentation supporting the reports and analyses submitted for a period of time not less than three years from the date of submittal and shall make copies of the reports, analyses and documentation available when so instructed by the General Superintendent.

Section 6. Reporting on Discharges of Hazardous Wastes to the Sewerage System

Each person subject to the provisions of this Ordinance shall report to the District, on forms supplied by the District, the discharge of hazardous wastes, as defined herein, into the sewerage systems under the jurisdiction of the District. Such reporting shall conform with all applicable terms and conditions of 40 CFR 403.12(p).

Copies of reports filed with the District pursuant to this section shall also be filed with the United States Environmental Protection Agency and the Illinois Environmental Protection Agency, pursuant to 40 CFR 403.12(p).

Section 7. Maintenance of Records

Each person subject to any of the reporting requirements of this Ordinance shall maintain copies of reports and records as required in 40 CFR 403.12(o) resulting from any monitoring activities required by this Ordinance for a minimum of three (3) years and shall make such records available for inspection and/or copying by the District or its representatives. All records pertaining to an incident of noncompliance and the person's actions taken to return to compliance shall be retained for a minimum of three (3) years following the return to compliance resulting from a Cease and Desist Order, Show Cause Board Order or Court Order.

ARTICLE VI

Administrative Proceedings

Section 1. Cease and Desist Orders

Whenever the General Superintendent determines that sewage, industrial wastes, or other wastes are being, have been, or may reasonably be expected to be discharged into any waters or the sewerage system under the jurisdiction of the District, which are not in compliance with the provisions of this Ordinance, or that any person has otherwise acted contrary to the provisions of this Ordinance or to a Discharge Authorization issued to such person under this Ordinance, the General Superintendent or his designee shall order such person to cease and desist such action in violation of this Ordinance or a Discharge Authorization issued to such person under this Ordinance. The Cease and Desist Order shall be sent via Certified Mail, Return Receipt Requested. The General Superintendent or his designee may convene a conciliation meeting with the person so ordered to cease and

desist for the purpose of establishing a compliance and reporting schedule for the person to come into compliance with the Ordinance or provisions of the Discharge Authorization.

Section 2. Compliance Reports

During conciliation proceedings, any person may be required to furnish the District with interim and final progress compliance reports and such other information as is reasonably necessary to demonstrate compliance with the applicable discharge standards of this Ordinance. All such reports, data, and information, shall be executed by an authorized representative of the person and certified as to accuracy and completeness by a Registered Professional Engineer.

Section 3. Proceedings for Show Cause/Board Order Compliance

If any person fails or refuses to achieve compliance with this Ordinance within 90 days after notification of a Cease and Desist Order issued pursuant to this Ordinance, the General Superintendent may order such person who causes or allows pollution or such discharge or engages in activities or conduct prohibited hereunder to show cause before the Board of Commissioners of the District or its designee why such pollution, discharge, or prohibited activity or conduct should not be discontinued. A notice shall be served on the offending party, specifying the time and place of a hearing to be held by the Board of Commissioners regarding the violation, and directing the offending party to show cause before the Board why an order should not be entered directing the discontinuance of such pollution, discharge or other prohibited activity or conduct. The notice of the hearing shall be served personally or by Registered or Certified Mail at least ten (10) days before the hearing; service may be had on any agent or officer of a corporation or municipality. The Board of Commissioners may, itself, conduct the hearing and take the evidence, or may designate any of its members or any officer or employee of the District or any other person:

- a. To issue in the name of the Board, notices of hearings requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in any such hearings;
- b. To take the evidence; and
- c. To transmit a report of the evidence and hearing, including transcripts and other evidence, together with recommendations to the Board of Commissioners for action thereon.

If the offending party desires that the hearing officer designee should not be an officer or employee of the District, he shall notify the General Superintendent in writing no less than five (5) days before the first hearing date.

At any public hearing, testimony taken before the Board or any person designated by it must be under oath and recorded stenographically. The transcript so recorded will be made available to any member of the public or any party to the hearing upon payment of the usual charges therefor.

After the Board of Commissioners has reviewed the evidence, it may issue an order to the party responsible for the pollution, discharge, or other prohibited activity or conduct, directing that within a specified time period, the pollution, discharge or other prohibited activity or conduct be discontinued unless adequate treatment works, facilities or devices are properly operated or that any other prohibited activity hereunder be discontinued, and any other such orders as the Board may deem necessary.

Section 4. Failure to Report is a Violation

Whenever a person subject to this Ordinance fails to comply with any of the reporting requirements of this Ordinance or with details regarding reporting requirements as directed by the General Superintendent, such failure shall be a violation of the Ordinance. If it is necessary for the District to perform inspections and/or sampling of the person's facility, the District may recover the costs of such activity from the person in the same manner as debts are recoverable at law.

Section 5. Failure to Submit All Self-Monitoring Reports is a Violation

In accordance with the requirements of 40 CFR 403.12(g)(5), each person subject to this Ordinance must submit all self-monitoring discharge analytical data to the Director of the District's Research and Development Department, regardless of whether or not the data so obtained is in addition to the District's minimum reporting requirements.

Section 6. Self-Reporting A Violation

In accordance with 40 CFR 403.12(g)(2), each person must report all violations identified as a result of self monitoring to the District by telephone, during normal business hours, to the Industrial Waste Division, Enforcement Section (312) 751-3044 within 24 hours of the time the person becomes aware of such violation. Said person must also submit the results of repeat analyses to the Director of the District's Research and Development Department within thirty (30) days after becoming aware of the violation together with a complete report on all steps taken to resolve the violation.

Section 7. Penalties

In its Board Order, the Board of Commissioners will make findings based upon the evidence, which includes the number of days of violation, and a recommendation of a fine of not less than \$100.00 nor more than \$10,000.00 for each offense. Each day's continuance of a failure to comply with any provision of this Ordinance shall constitute a separate offense. If a person violates the terms of a Board Order, the District will seek to recover, in a civil action, the fines recommended by the Board of Commissioners, for the violations which are recited in the Board Order.

ARTICLE VII Court Proceedings

Section 1. Violation of Order to be Considered a Nuisance

A violation of an Order of the Board of Commissioners shall be considered a nuisance. If any person causes or permits

pollution to occur or discharges sewage, industrial wastes or other wastes into any waters or sewerage system under the jurisdiction of the District, or engages in any other activity or conduct prohibited by this Ordinance, or fails to comply with any Order of the Board of Commissioners, the District, acting through the General Superintendent, may commence an action or proceeding in the Circuit Court in and for the county in which the District is located or operates facilities for the purpose of having the pollution, discharge, or other prohibited activity stopped either by mandamus or injunction.

Section 2. Penalties

Whoever fails to comply with any provision of an Order of the Board of Commissioners issued in pursuance of this Ordinance shall be fined not less than \$1,000.00, nor more than \$10,000.00, for each offense. Each day's continuance of such failure to comply shall constitute a separate offense. The penalties so imposed, plus reasonable attorney's fees, court costs and other expenses of litigation, together with costs for inspection, sampling, analysis, and administration related to the enforcement action against the offending person beginning with the issuance of the Cease and Desist Order, are recoverable by the District in a civil action.

Section 3. Injunctive Relief

In addition to the penalties provided in the foregoing Section, whenever a person violates any provision of this Ordinance or fails to comply with any Order of the Board of Commissioners, the District, acting through the General Superintendent, may apply to the Circuit Court of Cook County for the issuance of an injunction restraining the person violating the Ordinance or failing to comply with the Board Order from making any further discharges into the waterways or sewerage system of the District.

Notwithstanding any other remedies which the District may have by statute, common law or this Ordinance, when, in the determination of the General Superintendent, any person's discharge presents an imminent danger to the public health, welfare or safety, presents or may present an endangerment to the environment, or which threatens to interfere with the operation of the sewerage system or a water reclamation

facility under the jurisdiction of the District, the District, acting through the General Superintendent, may apply to the Circuit Court of Cook County for injunctive relief to cease and desist such discharge, without first exhausting administrative procedures.

ARTICLE VIII

Savings Clause

Section 1. Integrity of Ordinance

If the provisions of any paragraph, section or article of this Ordinance are declared unconstitutional or invalid by the final decision of any court of competent jurisdiction, the provisions of the remaining paragraph, sections or articles shall continue in full force and effect.

Section 2. Previous Violations

Nothing in this Ordinance shall in any manner or form affect the validity of any enforcement proceedings instituted under the Sewage and Waste Control Ordinance, in effect prior to the date of this amendment. Enforcement proceedings shall be controlled by the Sewage and Waste Control Ordinance, as amended, in effect at the time of the commencement of such enforcement activity.

ARTICLE IX

Effective Date

This comprehensive Amendment shall take effect immediately upon passage by the Board of Commissioners.

Approved:

NICHOLAS J. MELAS

President

Board of Commissioners

Metropolitan Water Reclamation

District of Greater Chicago

Approved as to Form & Legality:

ALAN COOK

Head Assistant Attorney

JAMES B. MURRAY

Attorney

APPENDIX A
to the
SEWAGE AND WASTE CONTROL ORDINANCE
DISCHARGES TO AND POLLUTION OF WATERS

Section 1. General Provisions

1. Dilution

Dilution of the effluent from a treatment works or from any wastewater source is not acceptable as a method of treatment of wastes in order to meet the standards set forth in this Appendix A. Rather, it shall be the obligation of any person discharging contaminants of any kind to the waters of the state to provide the best degree of treatment of wastewater consistent with technological feasibility, economic reasonableness and sound engineering judgment. In making determinations as to what kind of treatment is the "best degree of treatment" within the meaning of this paragraph, any person shall consider the following:

- (1) What degree of waste reduction can be achieved by process change, improved housekeeping, and recovery of individual waste components for reuse; and
- (2) Whether individual process wastewater streams should be segregated or combined.

In any case, measurement of contaminant concentrations to determine compliance with the effluent standards shall be made at the point immediately following the final treatment process and before mixture with other waters, unless another point is designated by the District. If necessary, the concentrations so measured shall be recomputed to exclude the effect of any dilution that is improper under this Appendix A.

b. Background Concentrations

Because the effluent standards in this Appendix A are based upon concentrations achievable with conventional treatment technology that is largely unaffected by ordinary levels of contaminants in intake water, they are absolute standards that must be met without subtracting background concentrations. However, it is not the intent of these regulations to require users to clean up contamination caused essentially by upstream sources or to require treatment when only traces of contaminants are added to the background.

Compliance with the numerical effluent standards is therefore not required when effluent concentrations in excess of the standards result entirely from influent contamination, evaporation, and/or the incidental addition of traces of materials not utilized or produced in the activity that is the source of the waste.

c. Sampling

Except as otherwise specifically provided in this Appendix A, proof of violation of the numerical

standards of this Appendix A shall be on the basis of one or more of the following standards:

- (1) No monthly average shall exceed the prescribed numerical standard.
- (2) No daily composite shall exceed two times the prescribed numerical standard.
- (3) No grab sample shall exceed five times the prescribed numerical standard.

d. Terminology

Terms used under Section 1c shall have the following meanings:

- (1) The monthly average shall be the numerical average of all daily composites taken during a calendar month. A monthly average must be based on at least three daily composites.
- (2) A daily composite shall be the numerical average of all grab samples, or the result of analysis of a single sample formed by combining all aliquots taken during a calendar day. A daily composite must be based on at least three grab samples or three aliquots taken at different times.
- (3) A grab sample is a sample taken at a single time. Aliquots of a daily composite are grab samples only if they are analyzed separately.

Section 2. Violation of Water Quality Standards

In addition to the other requirements of this Appendix A, no effluent shall, alone or in combination with other sources, cause a violation of any state water quality standard. When the District finds that a discharge that would comply with effluent standards contained in this Appendix A would cause or is causing a violation of state water quality standards, the District shall take appropriate action to require the discharge to meet whatever effluent limits are necessary to ensure compliance with the state water quality standards. When such a violation is caused by the cumulative effect of more than one source, several sources may be joined in an enforcement proceeding, and measures for necessary effluent reductions will be determined on the basis of technological feasibility, economic reasonableness, and fairness to all dischargers.

Section 3. Offensive and Threatening Discharges

In addition to the other requirements of this Appendix A, no effluent shall contain untreated sewage constituents, settleable solids, floating debris, visible oil, grease, scum, or sludge solids, or liquids, solids or gases which by reason of their nature or quantity are sufficient to cause fire or explosion or be injurious in any other way to the sewerage system, to human life or to the environment. No effluent shall have a closed cup flashpoint less than 140 degrees Fahrenheit (60 degrees Centigrade) using the test methods specified in 40 CFR 261.21. Color, odor and turbidity must be reduced to below obvious levels.

Section 4. Deoxygenating Wastes

All effluents containing deoxygenating wastes shall meet the following standards:

- No effluent from any source discharging into the Chicago River System or into the Calumet River System shall exceed 20 mg/L of BOD or 25 mg/L of suspended solids.
- No effluent whose dilution ratio is less than five to one shall exceed 10 mg/L of BOD or 12 mg/L of suspended solids.
- No effluent whose dilution ratio is less than one to one shall exceed 4 mg/L of BOD or 5 mg/L of suspended solids.

Section 5. Bacteria

No effluent governed by this Appendix A shall exceed 400 fecal coliforms per 100 mL.

Section 6. Phosphorus

No effluent discharged to the Calumet River shall contain more than 1.0 mg/L of phosphorus as P.

Section 7. Lake Michigan

There shall be no discharge of any sewage, industrial wastes or other wastes of any kind into the waters of Lake Michigan.

Section 8. Additional Contaminants

The following levels of contaminants shall not be exceeded by any discharge of sewage, industrial wastes or other wastes to waters under the jurisdiction of the District.

Waste or Chemical	Concentration (mg/L)
Arsenic (total)	0.25
Barium (total)	2.0
Cadmium (total)	0.15
Chromium (total hexavalent)	0.1*
Chromium (total)	1.0
Copper (total)	0.5
Cyanide	0.10
Fats, oils and greases	15.0**
Fluoride (total)	15.0
Iron (total)	2.0
Lead (total)	0.2
Manganese (total)	1.0
Mercury (total)	0.0005***
Nickel (total)	1.0
Phenols	0.3
Silver	0.1
Zinc (total)	1.0
pH range (must be met at all times)	6.0-9.0

* Discharge of hexavalent chromium shall be subject to the averaging rule of Section 1c of this Appendix, modified as follows: monthly averages

shall not exceed 0.1 mg/L; daily composites shall not exceed 0.3 mg/L; and grab samples shall not exceed 1.0 mg/L.

** Oil may be analytically separated into polar and nonpolar components. If such separation is done, neither of the components may exceed 15 mg/L (i.e., 15 mg/L polar materials and 15 mg/L nonpolar materials).

*** Except if all of the following conditions are met:

- The discharger does not use mercury; or the discharger uses mercury and this use cannot be eliminated; or the discharger uses mercury only in chemical analyses or in laboratory or other equipment and takes reasonable care to avoid contamination of wastewater; and
- The effluent mercury concentration is less than 0.003 mg/L, as determined by application of the averaging rules of Section 1c of this Appendix; and
- The discharger is providing the best degree of treatment consistent with technological feasibility, economic reasonableness and sound engineering judgment. This may include no treatment for mercury; and
- The discharger has an inspection and maintenance program likely to reduce or prevent an increase in the level of mercury discharges

APPENDIX B

to the

SEWAGE AND WASTE CONTROL ORDINANCE DISCHARGES TO AND POLLUTION OF SEWERAGE SYSTEMS

Section 1. Pollutant Concentration Limits

The following are the maximum concentrations acceptable for discharge of sewage, industrial wastes, or other wastes into sewerage systems under the jurisdiction of the District at any time:

Waste or Chemical	Concentration (mg/L)
Cadmium	2.0
Chromium (total)	25.0
Chromium (hexavalent)	10.0
Copper	3.0
Cyanide (total)	5.0
Fats, Oils and Greases (FOG)(total)	250.0
Iron*	250.0
Lead	0.5
Nickel	10.0
Zinc	15.0
pH Range—Not lower than 5.0 or greater than 10.0	

Temperatures of liquids or vapors at point of entrance to a public sewer shall not exceed 150°F.

- * Discharges from domestic water treatment plants which supply potable water to the general public shall be exempt from this limitation for iron.

Section 2. Discharge Prohibitions

Any discharge of waste or waters into a sewer which terminates in or is a part of the sewerage system of the District, must not contain the following:

- a. Liquids, solids or gases which by reason of their nature or quantity are sufficient to cause fire or explosion or be injurious in any other way to the sewerage system or to the operation of the water reclamation facilities, including, but not limited to, any wastestream having a closed cup flashpoint less than 140 degrees Fahrenheit (60 degrees Centigrade) using the test methods specified in 40 CFR 261.21.
- b. Noxious or malodorous liquids, gases or substances which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life, to cause injury or acute worker health or safety problems, or to prevent entry into the sewers for their maintenance or repair.
- c. Water or wastes containing toxic substances in quantities which are sufficient to interfere with the biological processes of the water reclamation facilities.
- d. Garbage that has not been ground or comminuted to such a degree that all particles will be carried freely in suspension under conditions normally prevailing in public sewers, with no particle greater than one-half inch in any dimension.
- e. Radioactive wastes unless they comply with the Atomic Energy Commission Act of 1954 (68 Stat. 919 as amended and part 20, Sub-Part D-Waste Disposal, Section 20.303 of the Regulations issued by the Atomic Energy Commission, or amendments thereto).
- f. Solid or viscous wastes which cause obstruction to the flow in sewers or other interference with the proper operation of the sewerage system or water reclamation facilities, such as grease, uncomminuted garbage, animal guts or tissues, paunch manure, bone, hair, hides, fleshings, entrails, feathers, sand, cinders, ashes, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grain, waste paper, wood, plastic, gas, tar, asphalt residues, residues from refining or processing of fuel or lubricating oil, gasoline, naphtha and similar substances.
- g. Waters or waste containing substances which are not amenable to treatment or reduction by the sewage treatment process employed, or are amenable to treatment only to such degree that the water reclamation facilities' effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.
- h. Excessive discoloration (such as, but not limited to, dye waste and vegetable tanning solutions) which threatens the District's operations.
- i. Mercury in excess of 0.0005 mg/L, except as provided below:
 - (1) The discharger does not use mercury; or the discharger uses mercury and this use cannot be eliminated; or the discharger uses mercury only in chemical analyses or in laboratory or other equipment and takes reasonable care to avoid contamination of wastewater;
 - (2) The discharge mercury concentration is less than 0.003 mg/L on a monthly average, 0.006 mg/L in a daily composite, and 0.015 mg/L in any grab sample;
 - (3) The discharger is providing the best degree of treatment consistent with technological feasibility, economic reasonableness and sound engineering judgment. This may include no treatment for mercury; and
 - (4) The discharger has an inspection and maintenance program likely to reduce or to prevent an increase in the level of mercury discharges.
 - (5) The discharge of wastes from medicinal or therapeutic uses of mercury, exclusive of laboratory use, shall be exempt from the 0.0005 mg/L limitation of this section if all the following conditions are met:
 - (a) The total plant discharge is less than 227g (one half pound) as Hg in any year;
 - (b) The discharge is to a public sewer system; and
 - (c) The discharge does not, alone or in conjunction with other sources, cause the effluent from the sewer system or treatment facility to exceed 0.0005 mg/L of mercury.
- j. Pollutants which will cause corrosive structural damage.
- k. Pollutants including, but not limited to, petroleum oil, nonbiodegradable cutting oil, and products of mineral origin, which cause interference or pass-through.
- l. Hauled or trucked wastes, except at discharge points designated by and under valid written authorization of the District.

Section 3. Dischargers in the Poplar Creek Service Area

Persons located in the Poplar Creek Service Area of the District discharging sewage, industrial waste and other wastes to the sewerage system under the jurisdiction of the District which is tributary to the water reclamation facility owned and operated by the Sanitary District of Elgin may be subject to more stringent limitations than the limitations found in Appendix B.

APPENDIX C to the SEWAGE AND WASTE CONTROL ORDINANCE REGULATIONS APPLICABLE TO SIGNIFICANT INDUSTRIAL USERS

ARTICLE I

Reporting Requirements Applicable to Significant Industrial Users

In addition to the reporting requirements contained in Article V of this Ordinance, the following reporting requirements are applicable to any person identified by the District as a significant industrial user.

Section 1. Baseline Monitoring Report

Within 90 days after the date of promulgation for the applicable categorical standards found in Appendix C, existing industrial users subject to categorical pretreatment standards and currently discharging an effluent into a sewerage system under the jurisdiction of the District, shall complete and submit to the District, on forms supplied by the District, a BMR. Within 90 days after being notified by the District of designation as a significant industrial user, significant industrial users not subject to categorical standards shall submit a BMR to the District. Sampling requirements for the completion of the BMR shall be supplied by the District and shall conform to the requirements of 40 CFR 403.12(b)(5)(iii).

Upon adoption of Appendix D to this Ordinance, the BMR form supplied by the District for purposes of reporting under this section is replaced by the Discharge Authorization Request (DAR) form supplied by the District. All provisions of this Ordinance relating to the preparation and submittal of the BMR form shall be applicable to the preparation and submittal of the DAR form.

The BMR shall contain all information required by 40 CFR 403.12 (b)(c) and (g) of the general pretreatment regulations together with additional information as required by the District.

The BMR shall be executed by an authorized representative of the significant industrial user and certified as accurate and complete by a Registered Professional Engineer licensed by the state of Illinois.

New significant industrial users shall complete and submit to the District, on forms supplied by the District, an acceptable BMR at least ninety (90) days prior to commencing discharge.

Section 2. Compliance Schedule

It shall be unlawful for a significant industrial user to continue to discharge process wastewater to a sewerage system under the jurisdiction of the District if the General Superintendent has found the person in violation pursuant to Article VI, Section 1 of this Ordinance, or if the person certifies in their BMR or DAR that applicable pretreatment standards or other requirements are not being met on a consistent basis and that additional operation and maintenance or pretreatment facilities are required to meet those standards or requirements, unless the significant industrial user has submitted to the District a compliance schedule which conforms to the requirements of 40 CFR 403.12(c) and which is acceptable to and approved by the General Superintendent. The schedule shall be certified by an authorized representative of the industrial user and certified by a Registered Professional Engineer licensed by the state of Illinois. In the event the compliance schedule is not acceptable, the General Superintendent may require resubmittal of a compliance schedule acceptable to the District, or may proceed as set forth under Article VI of this Ordinance.

A compliance schedule submitted by a significant industrial user as required herein shall be considered an enforceable requirement of a DA issued to the significant industrial user, and failure to comply with the compliance schedule shall be considered a violation of this Ordinance.

Section 3. Final Compliance Report

Each person subject to categorical pretreatment standards shall, within ninety (90) days following the date for final compliance as set forth in Appendix C, Article III, submit to the Director of the District's Research and Development Department, a report of final compliance with the categorical pretreatment standards on forms supplied by the District. The statement shall conform to the requirements of 40 CFR 403.12(d) and (g) and shall be executed by an authorized representative of such person and certified by a Registered Professional Engineer licensed by the state of Illinois.

New significant industrial users shall complete and submit to the Director of the District's Research and Development Department a report of final compliance within ninety (90) days of commencing discharge.

Each significant industrial user shall take representative samples for a minimum of three (3) days within a 2-week period for the monitoring of a wastestream with a flow less than or equal to 200,000 gallons per day. Where the flow of a wastestream

exceeds 200,000 gallons per day, the user shall take samples for six (6) days within a 2-week period. Sample collection shall conform to the requirements of 40 CFR 403.12(b)(5)(iii). Sample analysis shall include all parameters listed in Appendix B, Sections 1 and 2(l) of this Ordinance and any parameters listed in the categorical pretreatment standards applicable to the significant industrial user.

Section 4. Reporting Continued Compliance

Each significant industrial user shall submit to the District, on forms supplied by the District and at intervals specified by the District, in the Discharge Authorization issued to the significant industrial user, which shall not be more often than once per month nor less than twice per year, a report on continued compliance with applicable pretreatment standards and other requirements of this Ordinance. The reports shall conform to the requirements of 40 CFR 403.12(e) and (g) and shall be certified by an authorized representative of the industrial user.

Sampling requirements for the completion of reports on continued compliance shall be the same as described in Section 3 above.

ARTICLE II Additional Requirements Relating to Compliance With Appendix C

Section 1. Dilution Prohibition

No person shall augment the use of process water or, in any way, dilute or attempt to dilute a discharge as a partial or complete substitute for adequate pretreatment to achieve compliance with the limitations contained in this Ordinance.

Section 2. Intake Water Adjustment

Persons seeking adjustment of categorical pretreatment standards to reflect the presence of pollutants in their intake water must comply with the requirements of 40 CFR 403.15. The General Superintendent may, upon notification of approval by the USEPA, apply the adjustment for application to the industrial user.

Section 3. Fundamentally Different Factors Variance

Persons seeking variances for reasons of fundamentally different factors must comply with the requirements of 40 CFR 403.13. The General Superintendent may, upon notification of approval by the USEPA of the variance request, apply limitations to the industrial user.

Section 4. Adjustment for Combined Waste Streams

Persons seeking adjustments in the categorical pretreatment standards may petition the District for approval of adjustments to account for the combining or mixing of industrial process waste discharges with other flows or industrial process waste discharges prior to pretreatment or to discharge to the sewerage system under the jurisdiction of the District. The petition to the District must follow requirements and formulae established in 40 CFR 403.6(e) and be certified by an authorized representative and certified by a Registered Professional Engineer licensed by the state of Illinois.

Section 5. End-of-Process Monitoring

Where required to comply with the categorical pretreatment standards of Appendix C, additional control manholes or sampling chambers shall be provided at the end of each industrial process within an industrial user's facility.

ARTICLE III Categorical Pretreatment Standards

Section 1. Categorical Standards

Industrial categories for which pretreatment standards have been promulgated and as amended by the USEPA are listed herein. Industrial users in one or more of the regulated categories will be supplied with the appropriate pretreatment standards by the District. Those categorical standards as promulgated and as amended by the USEPA and set forth below are adopted by the Board of Commissioners as its performance criteria for discharge to sewers under the jurisdiction of the District.

Industrial Category	40 CFR Part	Proposed Rule Date	Final Rule Date	Existing Sources Compliance Date
Aluminum Forming	467	11/22/82	10/24/83	10/24/86
Battery Manufacturing	461	11/10/82	3/09/84	3/09/87
Builders' Paper and Board Mills	431	1/06/81	11/18/82	7/01/84
Coil Coating I	465	1/12/81	12/01/82	12/01/85
Coil Coating II (Canmaking)	465	2/10/83	1/17/83	11/17/86
Copper Forming	468	11/12/82	8/15/83	8/15/86
Electrical & Electronic Components I	469	8/24/82	4/08/83	7/14/86
for Total Toxic Organics				7/01/84
for Arsenic				11/08/85
Electrical & Electronic Components II	469	3/09/83	12/14/83	7/14/86
for Total Toxic Organics				7/01/84
for Arsenic				11/08/85
Electroplating	413	2/14/78	1/28/81	
for Total Toxic Organics only				7/15/86
for nonintegrated facilities				4/27/84
for integrated facilities				6/30/84
Inorganic Chemicals I	415	7/24/80	6/29/82	8/12/85
Inorganic Chemicals II	415	10/25/83	8/22/84	
A, B, L, AL, AR, BA, BC				7/20/87
AJ, AU, BL, BM, BN, BO				8/22/87
Subparts Not Listed Above				6/29/85
Iron & Steel	420	1/07/81	5/27/82	7/10/85
Leather Tanning & Finishing	425	7/02/79	11/23/82	11/25/85
Metal Finishing	433	8/31/82	7/15/83	2/15/86
for Interim Total Toxic Organics only	413			6/30/84
Metal Molding & Casting (Foundries)	464	11/15/82	10/30/85	10/31/88
Nonferrous Metal Forming	471	3/05/84	8/23/85	8/23/88
Nonferrous Metal Manufacturing I	421	2/17/83	3/08/84	3/09/87
Nonferrous Metal Manufacturing II	421	6/27/84	9/20/85	9/20/88
Organic Chemicals, Plastics, & Synthetic Fibers	414	3/21/83	11/05/87	11/05/90
	416			
Pesticides	455	11/30/82	10/04/85	10/04/88
Petroleum Refining	419	12/21/79	10/18/82	12/01/85
Pharmaceutical Manufacturing	439	11/26/82	10/27/83	10/27/86
Plastics Molding & Forming	463	2/15/84	12/17/84	1/30/88
Porcelain Enameling	466	1/27/81	11/24/82	11/25/85
Pulp, Paper & Paperboard	430	1/06/81	11/18/82	7/01/84
Rubber Processing	428	12/18/79	No date	No date
Steam Electric Power Generating	125	10/14/80	11/19/82	7/01/84
	423			
Textile Mills	410	10/29/79	9/02/82	Not Applicable
Timber Products Processing	429	10/31/79	1/26/81	1/26/84

APPENDIX D
to the
SEWAGE AND WASTE CONTROL ORDINANCE
DISCHARGE AUTHORIZATIONS

Section 1. Applicability

As provided under Article III, Section 1 of this Ordinance, and except as provided elsewhere in this Appendix, it shall be unlawful for any significant industrial user, as defined herein, to cause or allow the discharge of process wastewater into the sewerage system under the jurisdiction of the District unless such significant industrial user is in conformance with all terms and conditions of a current valid Discharge Authorization issued to said significant industrial user by the District.

Section 2. Discharge Authorization Document

The Discharge Authorization document issued by the District shall contain, at a minimum, the following conditions:

- a. Statement of limited duration not to exceed five years, as provided for in Appendix D, Section 6 of this Ordinance;
- b. Transferability provision, as provided for in Appendix D, Section 7 of this Ordinance;
- c. Effluent discharge limitations applicable to all effluent discharge monitoring points of the industrial user, as provided for in Appendix B and Appendix C of this Ordinance;
- d. Self-monitoring, sampling, reporting, notification and recordkeeping requirements, including identification of the pollutants to be monitored, sampling points, sampling frequency and sample type, as provided for in Article V, Article VI, Appendix C and Appendix D of this Ordinance;
- e. Statement of applicable penalties for violation of standards and requirements, as provided for in Article VI and Article VII of this Ordinance; and
- f. Compliance milestone requirements and dates of any compliance schedule entered into by the significant industrial user to remedy a condition of noncompliance with the terms and conditions of this Ordinance or a DA issued to the significant industrial user pursuant hereto.

Section 3. Discharge Authorization Request

Within 90 days of the date of notification from the District that a person has been determined to be a significant industrial user, such person shall complete and submit to the District, on forms supplied by the District, a Discharge Authorization Request (DAR). Sampling requirements for the completion of the DAR shall be specified on the DAR form supplied by the District. Sample collection and analysis shall conform to the requirements of 40 CFR 403.12(b)(5)(iii).

Any person who submits a completed and certified DAR to the District, in a timely manner as provided herein, may continue to cause or allow the discharge of process wastewater into the sewerage system under the jurisdiction of the District, in the absence of a DA, only in conformance with all other terms and conditions of this Ordinance.

For the purposes of this provision, any person who has on file with the District, a current and approved BMR shall be deemed to have been issued an interim DA, and shall not be required to submit a DAR, until 90 days after being notified of such requirement by the District.

The DAR shall disclose the name and address of the person, as defined herein, seeking the Discharge Authorization and identify the name(s) of all officers or principal owners of said person. The DAR shall be executed by an authorized representative of the person and certified as accurate and complete by a Registered Professional Engineer licensed in the state of Illinois.

Any person who plans to commence new activities or who plans to modify existing activities such that said person becomes a significant industrial user shall notify the District of such activities and shall submit to the District, on forms supplied by the District, a DAR at least 90 days prior to commencement of such activities and discharge to the sewerage system.

Section 4. Issuance of Discharge Authorization By District

Within 90 days of receipt of a completed DAR, the District shall notify the person submitting said DAR of approval or denial of the DAR and the reason(s) for denial.

For the purposes of this provision, any person who has on file with the District, a current and approved BMR shall be deemed to have been issued an interim DA.

Section 5. Review of Denial of Discharge Authorization or Special Condition in Discharge Authorization

Any person whose DAR has been denied by the District, or who wishes to have reviewed any special condition of a Discharge Authorization issued to such person, may request a review of the District's determination. Such request must be made in writing, to the Director of Research and Development and must be received by the District within 30 days of the date of notification that the DAR has been denied or of notification of the special condition. The request for review must clearly state the reason(s) why such person believes that the District's denial of the DAR or the special condition should be reviewed.

- a. Any person whose DAR for a new discharge has been denied by the District is prohibited from commencing the discharge of process wastewater

into the sewerage system of the District until such time as a Discharge Authorization is issued to said person

- b. Any person whose DAR for an existing discharge has been denied may continue to discharge process wastewater into the sewerage system of the District, only in accordance with all conditions reported in the DAR and not otherwise in violation of this Ordinance, during the review and until a final administrative decision by the District.
- c. Any person who requests a review of a special condition contained in a Discharge Authorization issued to said person, for an existing discharge of process wastewater, may continue to discharge process wastewater into the sewerage system of the District, only in accordance with all conditions of the Discharge Authorization issued to said person, except the special condition under review, and not otherwise in violation of this Ordinance, during the review and until a final administrative decision by the District.

The Director of Research and Development will inform the General Superintendent of all requests for review. The General Superintendent shall order that a hearing be held for each request for review. The review hearing shall comply with the hearing procedures of Article VI, Section 3 of this Ordinance. The final administrative decision on each review will be made by the Board of Commissioners after it receives a report with recommendations from the Review Hearing Officer.

Section 6. Request For Renewal of Discharge Authorization

Discharge Authorizations issued pursuant to this Ordinance shall be valid for a period not exceeding five years. Not less than 90 days prior to the expiration date of a discharge authorization issued by the District, the person to whom said discharge authorization was issued shall submit to the District, on a DAR form supplied by the District, a request for renewal of the discharge authorization. Any person who submits a completed and certified request for renewal, in a timely manner as provided herein, shall be granted an extension of the termination date of their DA, until such time as the District issues a determination with regard to such person's request for renewal of the DA. Any person whose request for renewal of a DA has been denied may seek review of such denial, as provided in Appendix D, Section 5 of this Ordinance.

During the period of review of any denial of a request for renewal of an existing DA, the person may continue to cause or allow the discharge of process wastewater into the sewerage system under the jurisdiction of the District only in conformance with all terms and conditions of this Ordinance and the DA previously issued to said person.

Section 7. Reissuance of Discharge Authorization to Another Person

Discharge Authorizations issued pursuant to this Ordinance shall be issued to the specific person, as defined in Article II of this Ordinance, and for the specific location identified in the Discharge Authorization Request submitted to the District. Any change in the person to whom a Discharge Authorization has been issued, must be reported to the Director of Research and Development within 10 days after such change, together with an affidavit verifying delivery of (i) a copy of the existing Discharge Authorization to the person to whom the Discharge Authorization is to be reissued, and (ii) a listing of all unresolved enforcement actions, and liabilities under the District's User Charge system, against the person holding the existing Discharge Authorization. In the absence of any unresolved enforcement action taken against the person holding the existing Discharge Authorization by the District, and if the person has paid to the District all monies due to the District under the District's User Charge system, the reissuance of the DA will be acceptable to the District, and the District will reissue a Discharge Authorization to the person, as identified in the above notification, within 30 days of receipt of said notification.

No Discharge Authorization may be reissued to another person if the person to whom the Discharge Authorization was issued is the subject of an unresolved enforcement action taken by the District, or if such person has failed to pay, within 30 days of the payment due date, all monies due to the District under the District's User Charge system, unless the person to whom the Discharge Authorization was issued resolves the enforcement action or pays to the District all monies due to the District on or before the date of reissuance, or unless the person to whom the Discharge Authorization is reissued has assumed full responsibility for and all liabilities arising from such unresolved enforcement action or past due User Charge payments owed to the District, and has so notified the Director of Research and Development, in writing, on or before the date of reissuance.

Continued discharge of process wastewater into a sewerage system under the jurisdiction of the District, in the absence of a current and valid Discharge Authorization, will subject the person found in violation to enforcement action as provided for in Appendix D, Section 9 of this Ordinance.

Section 8. Revocation of Discharge Authorization

In addition to the provisions for administrative and legal proceedings contained in Article VI and Article VII of this Ordinance, whenever the General Superintendent determines that a person to whom a discharge authorization has been issued has failed to comply with a Cease and Desist Order issued pursuant to Article VI of this Ordinance, the General Superin-

tendent may order such person to show cause before the Board of Commissioners why the discharge authorization should not be revoked. The show cause proceeding so ordered shall comply with the provisions of Article VI, Section 3 and Appendix D, Section 5 of this Ordinance.

Section 9. Continued Discharge in Absence of Current and Valid Discharge Authorization to be Considered a Violation

Whenever a person to whom a notification of applicability of this Appendix has been transmitted fails to submit a DAR as required under this Appendix, or whenever a person whose DA has been revoked pursuant to an order of the Board of Commissioners, or whose DA has expired, continues to cause or allow the discharge of process wastewater into a sewerage system under the jurisdiction of the District, the General Superintendent shall, by Registered or Certified Mail or by personal service by any employee of the District, notify such person that continued discharge in the absence of a valid DA may be considered a knowing and willful violation of this Ordinance, the applicable statutes of the state of Illinois and applicable federal pretreatment regulations.

The General Superintendent may refer such violation to the Office of State's Attorney in and for the county in which the District is located, or the Office of the United States Attorney, for such action as they may deem appropriate.

APPENDIX E

to the

**SEWAGE AND WASTE CONTROL ORDINANCE
RULES GOVERNING CONFIDENTIALITY AND
PUBLIC ACCESS TO INFORMATION**

**Section 1. Confidentiality and Information
Available to the Public**

All information submitted to the District pursuant to the reporting provisions of this Ordinance, with the exception of data as described below, is considered to be confidential business information and may not be released to the public without prior-written approval of the person submitting such information.

Information and data provided to the District relative to Article V, Sections 3 and 4, Appendix C, and Appendix D of this Ordinance which describe the concentration and/or mass loading of pollutants discharged, physical characteristics of discharge, general description of the location and nature of the source of pollutants, and analyses of samples of discharge shall be available to the public in accordance with 40 CFR 403.14. Cease and Desist Orders, Notices of Show Cause and other notices of enforcement action taken by the District pursuant to this Ordinance shall be available to the public upon written request to the Director of Research and Development. Information

regarding enforcement actions taken against persons in violation of this Ordinance is routinely provided to officials of municipalities in which the persons in violation are located or have indicated they plan to relocate.

Section 2. Annual Publication of Significant Violators

In accordance with the public participation requirements of 40 CFR 403.8(f)(2)(vii), the District, at least annually, will publish the identity of each significant violator of this Ordinance, along with the nature of such significant violation, in the newspaper of largest circulation within the jurisdiction of the District. Prior to publication, each such significant violator will be advised in writing of the District's intent to publish the identity of the significant violator and will be granted an opportunity to provide comment to the District regarding the appropriateness of such publication.

For purposes of publication, a person will be deemed in significant violation of this Ordinance if such person exhibits any of the following:

- a. chronic violation of effluent discharge limits, defined as 50 percent or more of all effluent discharge analyses for samples taken during a six month period exceeding the daily maximum limit or the average limit for any pollutant;
- b. acute violation of effluent discharge limits, defined as 33 percent or more of all effluent discharge analyses for samples exceeding the daily maximum limit or the average limit for any pollutant multiplied by the following technical review criteria (TRC):
 - i. For biochemical oxygen demand, total suspended solids, and fats, oils and greases, the TRC shall be 1.4;
 - ii. For pH, the TRC shall be less than 3.5 pH units or greater than 11.5 pH units;
 - iii. For all other pollutants, the TRC shall be 1.2;
- c. any single effluent discharge analysis exceeding the daily maximum limit multiplied by the following single-sample technical review criteria (STRC):
 - i. For biochemical oxygen demand, total suspended solids, and fats, oils and greases, the STRC shall be 2.2;
 - ii. For pH, the STRC shall be less than 3.0 pH units or greater than 12.0 pH units;
 - iii. For all other pollutants, the STRC shall be 1.6;
- d. any violation of an effluent discharge standard or prohibition which causes or contributes to pass-through or interference, the imminent threat of fire, explosion or other damage to the sewerage system, imminent endangerment to human health or the environment or which results in the District

exercising its emergency authority to halt such violation;

- e. failure to submit a completed and certified report within 30 days of a report due date;
- f. failure to meet, within 90 days after the schedule date, a compliance milestone date or final compliance date contained in a compliance schedule or Discharge Authorization;
- g. failure to provide access to the industrial user's premises to representatives of the District for the purposes of inspection and sampling;
- h. failure to comply with the spill containment and notification requirements regarding spills, malfunctions, bypasses and slug loadings contained in Article V, Section 4 of this Ordinance;
- i. failure to report any instance of noncompliance of which the person becomes aware by self-monitoring, as required under Article VI, Section 6 of this Ordinance; or
- j. noncompliance with any of the terms or conditions of the Ordinance, upon the determination of the General Superintendent.

APPENDIX F

to the

SEWAGE AND WASTE CONTROL ORDINANCE ENFORCEMENT RESPONSE PROCEDURE

This appendix represents the Enforcement Response Procedure (ERP) of the Metropolitan Water Reclamation District of Greater Chicago (District) for the enforcement of the terms and conditions of the District's Sewage and Waste Control Ordinance (Ordinance).

As recommended by the United States Environmental Protection Agency in "Pretreatment Compliance Monitoring And Enforcement Guidance", published July 25, 1986, the ERP has been developed to include a range of enforcement responses available to the District to effectively enforce the terms and conditions of its Ordinance. The ERP establishes a framework, the Response Option Matrix (ROM), in which the District will assess the degree of noncompliance by an Industrial User (IU) and in which the District may consider both mitigating and aggravating circumstances in determining the appropriate enforcement response. The ERP also establishes minimum response levels for incidents of noncompliance which are deemed critical in nature, including interference and pass-through.

TYPES OF ENFORCEMENT RESPONSES

Industrial Users (IU) found in noncompliance with any of the terms or conditions of the Ordinance are subject to enforcement action under the ERP. Enforcement actions such as Notices of Noncompliance and Cease and Desist Orders are determined by the District's

General Superintendent and are administered through the office of the Director of Research and Development (Director). Show Cause proceedings and legal actions are administered by the District's Attorney upon recommendation from the Director.

Incidents of noncompliance with the Ordinance will be evaluated in accordance with the ROM as to the type of enforcement response necessary to attain prompt compliance with the Ordinance.

The following types of enforcement responses are available to the District in response to incidents of noncompliance with its Ordinance.

A. Notice of Noncompliance—Appendix B (NONB)

A NONB is a written notification, sent via Certified Mail, Return Receipt Requested, which is directed to an authorized agent of an IU found to be in minor noncompliance (not in Significant Noncompliance as herein defined) with an applicable effluent discharge standard of Appendix B (local limits) of the Ordinance. The NONB advises the IU of the nature of the noncompliance, requires the IU to investigate the incident and take measures to remediate the condition of noncompliance, and to execute, within ten days of receipt of the NONB, a Declaration of Corrective Action, indicating that compliance has been achieved.

The Declaration of Corrective Action and statement of compliance will be subject to verification by District inspection and sampling within 90 days. Failure to achieve compliance will result in the issuance of a Cease and Desist Order.

B. Notice of Noncompliance—Appendix C (NONC)

A NONC is a written notification, sent via Certified Mail, Return Receipt Requested, which is directed to an authorized agent of an IU found to be in minor noncompliance (not Significant Noncompliance as herein defined) with an applicable effluent discharge standard of Appendix C (categorical pretreatment standards) of the Ordinance. The NONC advises the IU of the nature of the noncompliance, requires the IU to investigate the incident and take measures to remediate the condition of noncompliance, and to execute, within 45 days of receipt of the NONC, a Declaration of Corrective Action, indicating that compliance has been achieved. The IU is also required to conduct a minimum of three days of sampling to verify that compliance has been achieved and to submit all supporting analytical data with the Declaration of Corrective Action.

The Declaration of Corrective Action and statement of compliance will be subject to verification by District inspection and sampling within 90 days. Failure to achieve compliance will result in the issuance of a Cease and Desist Order.

C. Notice of Noncompliance—Baseline Monitoring Report Verification (NONBMR)

A NONBMR is a written notification, sent via Certified Mail, Return Receipt Requested, which is directed to an authorized agent of an IU found to be in noncompliance with an applicable effluent discharge standard of Appendix C (categorical pretreatment standards) of the Ordinance, during the Initial Baseline Monitoring Report verification inspection and sampling. The NONBMR advises the IU of the nature of the noncompliance and requires the IU to achieve compliance within 90 days of the date of the NONBMR. The IU is also advised that the District will inspect and sample the IU within 90 days of the date of the NONBMR and that the IU will be recommended for Show Cause action if the IU is again found in noncompliance. These NONBMRs are not issued to those companies who exceed a return-to-compliance period of 90 days. Companies who exceed the 90 day period are recommended for Show Cause action.

D. Cease and Desist Order—Reporting Requirements (C&DR)

A C&DR is a written notification, sent via Certified Mail, Return Receipt Requested, directed to an authorized agent of an IU which failed to submit a report within 30 days of the report due date. The C&DR advises the IU of the nature of the noncompliance and requires the IU to comply with the applicable reporting requirement within 30 days of the date of the C&DR.

In the event of failure to comply with pretreatment system malfunction, bypass or accidental spill notification requirements, the IU will be required to submit, within 30 days of the date of the C&DR, a fully implemented Spill Prevention, Control and Countermeasure Plan, including specific provisions for proper notification to the District of any pretreatment system malfunction, bypass or accidental spill incident.

Failure of an IU to supply any report or other information required by the District, as required under a C&DR, will result in Show Cause action being recommended.

E. Cease and Desist Order (C&D)

A C&D is a written notification, sent via Certified Mail, Return Receipt Requested, directed to an authorized agent of an IU found to be in noncompliance with an applicable effluent discharge standard of the Ordinance or with any terms or conditions of the Ordinance, with the exception of reporting requirements. The C&D advises the IU of the nature of the noncompliance and requires the IU to attain compliance with the Ordinance within 90 days of the date of the Order and to submit to the District a report regarding its investigation into the incident of noncompliance and a Compliance Schedule. The Compliance Schedule must be certified by an authorized agent of the IU, notarized, and must contain major milestone dates for implementation of

remediation measures as well as a compliance date. The compliance date indicated in the Compliance Schedule cannot extend greater than 90 days beyond the date of the C&D.

The IU will be required to submit to the District, not more than 15 days after the compliance date specified in the Compliance Schedule, a Final Compliance Report, certified by an authorized agent of the IU, and notarized, indicating that compliance has been achieved.

The IU's Final Compliance Report will be subject to verification by District inspection and sampling within 90 days of the District's receipt of the Final Compliance Report.

Failure to achieve compliance within 90 days from the date of the C&D or failure to submit a properly executed Final Compliance Report, indicating that compliance has been achieved, will result in Show Cause action being recommended.

F. Show Cause Proceedings (SC)

When it has been determined that any person has failed to comply with a Cease and Desist Order, the General Superintendent of the District may order an IU who engages in activity or conduct prohibited by the Ordinance to Show Cause before the District's Board of Commissioners (Board), or its hearing officer designee, why such prohibited activity or conduct should not be discontinued.

A Notice of Show Cause, directed to an authorized agent of the IU, is served personally or by Registered or Certified Mail, specifying the time and place of a hearing to be held by the Board, and directing the IU to Show Cause before the Board why an order should not be entered directing discontinuance of such prohibited activity or conduct.

The Board may, itself, conduct the hearing and take evidence, or may designate any of its members or any officer or employee of the District or any other person to issue, in the name of the Board, notices of hearings requesting attendance and testimony of witnesses and the production of evidence relevant to any matter involved in such hearing, to take evidence, and to transmit a report of the evidence and hearing, including transcripts and other evidence, together with recommendations to the Board for action thereon. At any public hearing, testimony taken before the Board or any person designated by it must be under oath and recorded stenographically. The transcript so recorded will be made available to any member of the public or any party to the hearing upon payment of the usual charges therefor.

After the Board has reviewed the evidence, it may issue a Board Order (BO) to the IU directing that within a specified time period, the prohibited activity or conduct be discontinued unless adequate pretreatment facilities are properly installed and operated to ensure

compliance, recommending penalties in the amount of not less than \$100.00 nor more than \$10,000.00 for each violation of the Ordinance. If a person violates the terms of a Board Order, the District will seek to recover, in a civil action, the fines recommended by the Board of Commissioners for violations which are recited in the Board Order.

G. Court Proceedings (CT)

Any activity or conduct of an IU which is in violation of or prohibited by the Ordinance, or failure of an IU to comply with an Order of the Board, shall be considered a nuisance. The District may commence an action or proceeding in the Circuit Court for the purpose of having such activity or conduct stopped either by mandamus or injunction.

The District shall seek penalties in the amount of not less than \$1,000.00 nor more than \$10,000.00 for each violation of the Ordinance, together with reasonable attorney's fees, court costs and other expenses of litigation. The District shall also seek recovery of all inspection, monitoring and administrative costs incurred after the issuance of a Cease and Desist Order relative to an IU found in violation of the Ordinance.

H. Civil or Criminal Referrals (CR)

If an IU engages in any activity or conduct in apparent violation of a statute of the state of Illinois or a federal regulation, the District may refer such matters to the Office of the State's Attorney, the Illinois Environmental Protection Agency, the United States Environmental Protection Agency or any other appropriate agency for investigation and civil and criminal enforcement action. Any such referral will be made in addition to an appropriate enforcement action taken pursuant to this ERP and will not reduce the District's responsibility to aggressively pursue such enforcement action.

The District will seek, through the appropriate agency, the maximum civil and criminal penalty assessable under statute or regulation and will supply evidence and testimony as deemed necessary by the agency in the prosecution of any such matters.

COMPLIANCE SCREENING/REVIEW

All IU self-reports and reports generated by District inspection and sampling of IUs will be reviewed by the Industrial Waste Division, Enforcement Section for incidents of noncompliance with applicable standards. Reports will be reviewed and enforcement actions will be taken in response to any incidents of noncompliance in accordance with the following schedule.

A. IU Self-reports

All IU self-reports will be reviewed within 45 days of receipt of said self-report. Enforcement action will be initiated within the same 45-day period, if required.

B. District Inspection and sampling reports

All District Inspection and sampling reports will be reviewed within 60 days of the completion of said District Inspection or sampling program at an IU. Enforcement action will be initiated within the same 60-day period, if required.

C. Enforcement Actions by Director

All enforcement response actions taken by the Director (NONB, NONC, NONBMR, C&DR, C&D) shall be initiated within the time periods indicated in Paragraphs A and B above.

D. Enforcement Actions by Attorney

All enforcement responses which require action by the Attorney (SC, CT, CR) will be recommended to the Attorney by the Director within the time periods indicated in Paragraphs A and B above. The Attorney will take action on all recommendations from the Director within 30 days of receipt of said recommendation.

SIGNIFICANT NONCOMPLIANCE

For the purpose of determining an appropriate enforcement response and for identifying IUs in Significant Noncompliance (SNC) whose identity will be published in the newspaper pursuant to 40 CFR 403.8(f)(2)(vii), incidents of noncompliance will be deemed Significant Noncompliance in accordance with the following evaluations:

A. Effluent Discharge Standards

An IU exhibiting chronic (occurring repeatedly as evidenced by District and/or self-reported sampling analysis) incidents of noncompliance will be deemed in Significant Noncompliance if 50 percent or more of all effluent discharge analyses for samples taken during a six month period exceed the daily maximum limit or the average limit for the same parameter.

An IU exhibiting acute (occurring occasionally or intermittently as evidenced by District and/or self-reported sampling analysis) incidents of noncompliance will be deemed in Significant Noncompliance if 33 percent or more of all available effluent discharge analyses for samples taken during a six month period equal or exceed the product of the daily maximum limit or the average limit multiplied by the following Technical Review Criteria (TRC).

1. For biochemical oxygen demand, total suspended solids, and fats, oils and greases excursions of Appendix B (local limits) the TRC will be 1.4.
2. For all other pollutants (heavy metals, cyanide, phenols, toxic organic compounds or fats, oils and greases utilized as a surrogate parameter), the TRC will be 1.2.
3. For pH, the TRC will be less than 3.5 pH units or greater than 11.5 pH units.

An IU may also be deemed in Significant Noncompliance if any single effluent discharge analysis exceeds the product of the maximum daily limit multiplied by 2.2 for biochemical oxygen demand, total suspended solids, and fats, oils and greases or the product of the maximum daily limit multiplied by 1.6 for all other pollutants, or if pH falls below 3.0 or above 12.0.

An IU discharging an effluent in noncompliance with any applicable effluent discharge limit will be deemed in Significant Noncompliance whenever the Director determines that the IU, either alone or in combination with any other IU, has caused or contributed to any incident of pass-through or interference. An IU contributing to the threat of fire, explosion or other damage to the sewerage system, or causing a hazard to life or the environment, or contributing to any other incident in response to which the District must exercise its emergency authority to halt such activity shall also be deemed in Significant Noncompliance.

B. Reporting Requirements

An IU in noncompliance with any applicable reporting requirement, more than 30 days after the report due date, will be deemed in Significant Noncompliance.

C. Compliance Schedule

An IU subject to a compliance schedule executed in response to any enforcement action taken by the District, or to a compliance schedule executed pursuant to any applicable categorical pretreatment standard, which fails to meet, within 90 days after the schedule date, a compliance milestone or final compliance date contained in its compliance schedule, will be deemed in Significant Noncompliance.

D. Failure to Report Noncompliance

An IU who, through self-monitoring or other means, becomes aware of an incident of noncompliance, and who fails to report such incident of noncompliance with the terms and conditions of the Ordinance, will be deemed in Significant Noncompliance.

E. Other Conditions

An IU who is in noncompliance with any of the terms and conditions of the Ordinance, upon the determination of the General Superintendent, shall be deemed in Significant Noncompliance.

TEST OF GOOD FAITH EFFORT

When determining an appropriate enforcement response to an incident of noncompliance, the District will consider the apparent attitude of the IU toward the effort required to achieve and maintain compliance with the Ordinance. If an IU appears to be acting in good faith to comply with the Ordinance, the District may choose an enforcement action on a more conciliatory level than if an IU does not appear to be acting in good faith to comply with the Ordinance. For the purpose of establishing a good faith effort on the part of an IU, the District will measure the IU's effort against the following standard, as stated in Legislative History of the Clean Water Act, No. 95-14, Vol. 3, p.463. "The Act requires industry to take extraordinary efforts if the vital and ambitious goals of the Congress are to be met. This means that business-as-usual is not enough. Prompt, vigorous, and in many cases, expensive pollution control measures must be initiated and completed as promptly as possible. In assessing the good faith of a discharger, the discharger is to be judged against these criteria. Moreover, it is an established principle, which applies to this act, that administrative and judicial review are sought on the discharger's own time."

RESPONSE OPTION MATRIX

A. IU Reporting and Self-monitoring

<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Failure to submit Industrial Category Determination Questionnaire (ICDQ)	Initial occurrence	C&DR
Failure to submit ICDQ	Repeated occurrence; failure to comply with C&DR	C&DR or SC*
Failure to submit initial Baseline Monitoring Report (BMR) or to submit amended BMR upon significant change in operation	Initial occurrence	SC
Failure to submit initial BMR or to submit amended BMR upon significant change in operation	Repeated occurrence	SC or CT
Failure to conduct self-monitoring and to submit periodic reports	Isolated occurrence	C&DR
Failure to conduct self-monitoring and to submit periodic reports	Repeated occurrence; failure to comply with C&DR	SC or CT
Minor deficiencies in periodic reports	Isolated occurrence	C&DR
Minor deficiencies in periodic reports	Repeated occurrence; failure to comply with C&DR	C&DR or SC
Major deficiencies in periodic reports, late reports	Isolated occurrence	C&DR
Major deficiencies in periodic reports, late reports	Repeated occurrence; failure to comply with C&DR	SC or CT
Failure to report effluent limit violation, pretreatment system malfunction, bypass or slug discharge (spill)	Isolated occurrence; no interference or pass-through	C&DR
Failure to report effluent limit violation, pretreatment system malfunction, bypass or slug discharge (spill)	Repeated occurrence; failure to comply with C&DR; no interference or pass through	C&DR or SC
Failure to report effluent limit violation, pretreatment system malfunction, bypass or slug discharge (spill)	Isolated occurrence; interference or pass-through	SC or CT or CR
Failure to report effluent limit violation, pretreatment system malfunction, bypass or slug discharge (spill)	Repeated occurrence; interference or pass-through	CT or CR
Failure to report effluent limit violation, pretreatment system malfunction, bypass or slug discharge (spill)	Any incident with POTW or environmental damage	CT or CR
Failure to report new or increased pollutant loading or change in flow	Isolated occurrence	C&DR
Failure to report new or increased pollutant loading or change in flow	Repeated occurrence	C&DR or SC
Failure to submit schedule of batch or infrequent discharges.	Isolated occurrence	C&DR
Failure to submit schedule of batch or infrequent discharges	Repeated occurrence; failure to comply with C&DR	SC

<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Failure to report batch or infrequent discharge	Isolated occurrence	C&DR
Failure to report batch or infrequent discharge	Repeated occurrence	SC or CT
Willful submission of false information	Any incident	CR
B. Compliance Schedules		
<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Willful submission of false information	Any incident	CR
Missed interim date	No impact on final date	
	For C&D	C&D
	For SC	SC
	For CT	CT
Missed interim date	Delay of final date less than 90 days, good cause	
	For C&D	C&D
	For SC	SC
	For CT	CT
Missed interim date	Delay of final date greater than 90 days, good cause	
	For C&D	SC
	For SC	SC
	For CT	CT
Missed interim date	Delay of final date, lacking good cause	
	For C&D	SC or CT
	For SC	SC or CT
	For CT	CT
Missed final date	Good cause, non-SNC	
	For C&D	C&D or SC
	For SC	SC or CT
	For CT	CT
Missed final date	Good cause, SNC	
	For C&D	SC
	For SC	CT
	For CT	CT
Missed final date	No good cause	
	For C&D	SC or CT
	For SC	CT
	For CT	CT
C. Effluent Limits		
<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Non-SNC, local limits	Isolated occurrence	NONB
Non-SNC, categorical pretreatment limits	Isolated occurrence except BMR verification sampling	NONC
Non-SNC	Repeated occurrence	C&D or SC

<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Categorical pretreatment standards	BMR verification sampling	NONBMR
Categorical pretreatment standards	NONBMR compliance sampling	SC
SNC	Isolated occurrence	C&D or SC
SNC	Repeated occurrence; failure to comply with C&D	SC or CT
Any limit	Isolated occurrence; interference or pass-through	SC or CT
Any limit	Repeated occurrence; interference or pass-through	CT
Any limit	Any incident with known POTW or environmental damage	CT or CR
Slug load (spill)	Isolated occurrence; no interference or pass-through	C&D or SC or CT or CR
Slug load (spill)	Repeated occurrence; no interference or pass-through	SC or CT or CR
Slug load (spill)	Isolated occurrence; interference or pass-through	SC or CT or CR
Slug load (spill)	Repeated occurrence; interference or pass through	CT or CR
Slug load (spill)	Any incident with known POTW or environmental damage	CT or CR
Any discharge from regulated categorical IU without approved BMR	Any incident	SC or CT
Any discharge from IU in violation of BO	Any incident	CT
D. Dilution		
<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Dilution of an effluent to achieve compliance with an effluent limitation	Isolated occurrence	C&D
Dilution of an effluent to achieve compliance with an effluent limitation	Repeated occurrence; failure to comply with C&D	C&D or SC
E. Entry and Access to Sampling Facilities		
<u>Noncompliance</u>	<u>Circumstances</u>	<u>Response</u>
Failure to allow entry for inspection	Isolated occurrence	C&D
Failure to allow entry for inspection	Repeated occurrence; failure to comply with C&D	C&D or SC

Failure to allow access for effluent sampling
Failure to allow access for effluent sampling

Isolated occurrence C&D
Repeated occurrence;
failure to comply
with C&D SC

F. Other Requirements

Noncompliance

Failure to comply with any requirement of Ordinance
or Order of GS

Failure to comply with any requirement of Ordinance
or Order of GS

Failure to comply with any requirement of Ordinance
or Order of GS

Failure to comply with any requirement of Ordinance
or Order of GS

Failure to comply with any BO

Circumstances

Response

Isolated occurrence,
no impact on POTW

C&D

Repeated occurrence,
no impact on POTW;
failure to comply
with C&D

C&D or SC

Any incident, inter-
ference or pass-through

SC or CT
or CR

Any incident with
known POTW or
environmental damage

CT or CR

Any incident of
SNC

CT

G. Civil and Criminal Referral Considerations

Noncompliance

Failure to comply with an applicable statute of State of
Illinois or federal regulation, any incident with evidence
of willful intent

Circumstances

Response

Any incident

CR

* Whenever optional responses are stated, the office of the Director of Research and Development will select the option based on the nature and severity of the incident(s) and surrounding circumstances.

APPENDIX C
SAMPLING STRATEGY



DEPARTMENT OF THE AIR FORCE
ARMSTRONG LABORATORY (AFSC)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

REPLY TO
ATTN OF:

OEBE (2Lt Acker, DSN 240-3305)

010 MAR 1992

SUBJECT:

O'HARE AFR Wastewater Characterization Survey Sampling Strategy

TO:

928 TAG ARFF/SGPB

1. A sampling strategy has been developed for the wastewater characterization survey to be performed by Armstrong Lab from 13-24 Apr 92. This sampling strategy is at Attachment 1. Attachment 2 lists the sampling schedule.
2. All samples taken will be analyzed for metals and volatile organics. The metals and volatile organics are typically found in mixed (industrial and domestic) sewage. Additional analytes will be measured as indicated. These additional analytes are expected to be discharged by the industrial activities upstream of the manholes.
3. Please review the attached sampling strategy and provide us with comments NLT 31 Mar 92. Negative replies are required. Questions concerning this strategy may be addressed to me at DSN 240-3305.

Anita M. Acker
ANITA M. ACKER, 2Lt, USAF, BSC
Consultant, Water Quality Branch
Armstrong Laboratory

2 Atchs:

1. O'HARE Sampling Strategy
2. O'HARE Sampling Schedule

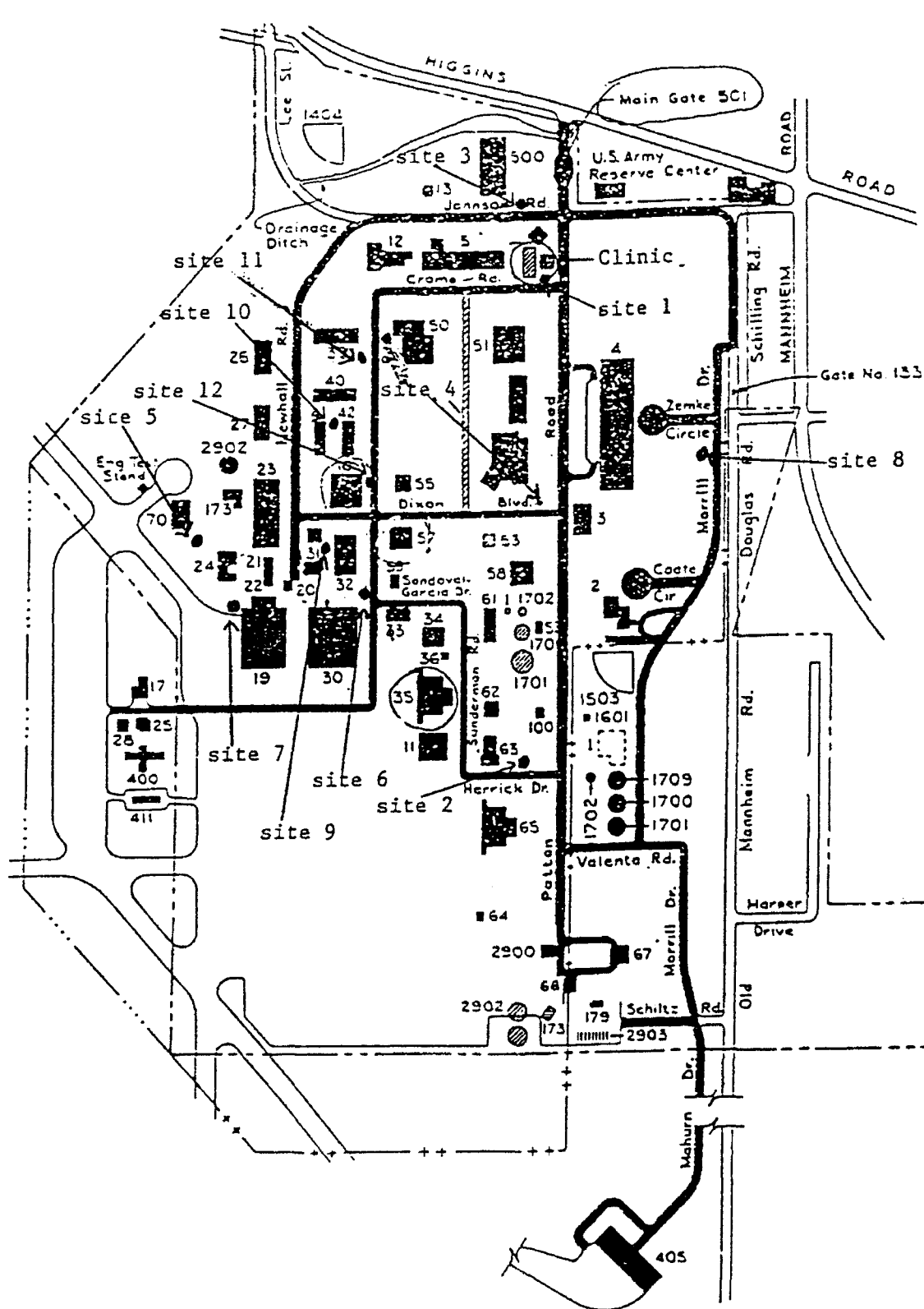
O'HARE AFR Sampling Strategy

Site #	Manhole #/Location	Site Description	Analyses
1	540, Crome Rd behind Clinic in the street	Clinic(504)	Metals, VOs, CN Ag, NH ₃
2	522, In parking lot near Patton Road	Fire Dept(63)	Metals, VOs, O&G, TPH, Phenol, Surf-MBAS
3	537, In the middle of Johnson Road	Guard Photolab (500)	Ag, Cr, CN, VOs, TPH, Metals, O&G, NH ₃
4	528, Dixon Blvd & Patton Rd by fire hydrant on the corner	Guard Motor Pool (74)	Metals, VOs, TPH, O&G, Surfs, Phenols, Cr
5	587, On FlightLine Fuel Cell,OMB(18)	Jet Engine(70)	Metals, Pb, VOs, TPH, TPH, O&G, Cr
6	560, On Flightline behind the NDI shop	NDI(54)	Metals, VOs, CN, NH ₃
7	579, Next to Bldg 19 on corner by flightline	Guard Hangar(19)	Metals, VOs, O&G, TPH
8	501, In parking lot of Bldg 4	Outfall to city	TT0, Metals, VOs, O&G, TPH, Ag, FL, CN, Cr, Phenols, Pb
9	589, Near curb of street on Newhall Rd	Corrosion Control (31) & 30	Metals, VOs, CN, Ag, Cr, O&G, TPH
10	Wet well/Lift station south of Bldg 40	Avionics,Guard CE, AFR CE Admin(40,26, 27, 41, & 42)	Metals, VOs, Pb, Ag, Cr, O&G, TPH
11	546, Middle of street on Wilholt Road	AFR Motor Pool(50)	Metals, VOs, TPH, O&G, Surfs, Phenols, Cr
12	557, Middle street on Wilholt Road	AFR CE Complex(10)	Metals, VOs, O&G, TPH, Ag, Pb

Key to Abbreviations

VOs: Volatile Organic Hydrocarbons and Volatile Organic Aromatics
 TPH: Total Petroleum Hydrocarbons
 CN: Cyanides (Total)
 O&G: Oils and Greases
 Surfs: Surfactants
 NH₃: Ammonia
 Ag: Silver
 Cr: Total Chromium
 TT0: Total Toxic Organics

O'HARE INTERNATIONAL AIRPORT (IAP) AIR RESERVE STATION



APPENDIX D
SAMPLING METHODS

SAMPLING METHODS

<u>Analysis</u>	<u>Preservation</u>	<u>EPA Method</u>	<u>Holding days</u>
Oil and Grease	H ₂ SO ₄ , 4°C	413	28
Hydrocarbons, Total	H ₂ SO ₄ , 4°C	418.1	28
Ammonia	H ₂ SO ₄ , 4°C	350.1	28
Fluoride	4°C	380-75WE	7
Residue, Total	4°C	160.3	7
Residue, Filterable (TDS)	4°C	160.1	7
Residue, Total Volatile	4°C	160.4	7
Cyanide, Total	NaOH	335.3	14
Phenols	H ₂ SO ₄ , 4°C	420.2	28
Arsenic	HNO ₃	206.2	28
Barium	HNO ₃	200.7	28
Beryllium	HNO ₃	200.7	28
Cadmium	HNO ₃	213.2	28
Chromium	HNO ₃	200.7	28
Copper	HNO ₃	200.7	28
Iron	HNO ₃	200.7	28
Lead	HNO ₃	239.1	28
Magnesium	HNO ₃	200.7	28
Manganese	HNO ₃	200.7	28
Mercury	HNO ₃	245.1	28
Nickel	HNO ₃	200.7	28
Silver	HNO ₃	272.2	28
Zinc	HNO ₃	200.7	28
Surfactants, MBAS	4°C	425.1	2
Volatile Organic Chemicals	4°C	624	14
Total Toxic Organics (TTO)	4°C	625	14

APPENDIX E
SAMPLING DATA RESULTS

SITE 1: AFR CLINIC

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	<10	<10	11.3
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	<10	700	260
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	28	18	24
MANGANESE	µg/L	<50	<50	<50
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	<50	100	76
AMMONIA	mg/L	24.4	11.6	4.4
CYANIDE, TOTAL	mg/L	.008	.011	.016
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYLVINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	6
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 2: FIRE DEPARTMENT

	UNITS	21 APR	22 APR	23 APR
ARSENIC	µg/L	10.5	<10	<10
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<50	<50	<50
CHROMIUM, TOTAL	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	374	190	296
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	28	30	28
MANGANESE	µg/L	<50	<50	<50
MERCURY	µg/L	QNS	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	92	<50	<50
PHENOLS	µg/L	75	29	44
SURFACTANTS	mg/L	0.6	0.3	0.4
OILS & GREASES	mg/L	8.3	44	31
TOTAL HYDROCARBONS	mg/L	<1.0	2	2
BENZENE	µg/L	<5	<5	7
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	5	7	6
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	5	33
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 3: ANG PHOTOLAB

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	<10	<10	<10
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<50	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
CHROMIUM, HEXAVALENT	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	<100	293	<100
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	13	13	14
MANGANESE	µg/L	<50	<50	<50
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	8	<5
ZINC	µg/L	<50	<50	<50
AMMONIA	mg/L	10.8	13.6	62.4
CYANIDE, TOTAL	mg/L	<.005	.007	.012
OILS & GREASES	mg/L	9.6	14.8	25.6
TOTAL HYDROCARBONS	mg/L	<1.0	14.8	5.2
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	11	9	12
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	7
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	12	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5

(CONTINUED)

1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100	<100

SITE 4: ANG MOTOR POOL

	UNITS	21 APR	22 APR	23 APR
ARSENIC	µg/L	33.1	<10	<10
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<100
CADMIUM	µg/L	<50	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	159	<100	<100
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	29	26	30
MANGANESE	µg/L	<50	<50	<50
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<50	<5	<5
ZINC	µg/L	<50	<50	<50
PHENOLS	µg/L	18	24	16
SURFACTANTS	mg/L	0.1	<0.1	0.3
OILS & GREASES	mg/L	4.9	5.3	48.9
TOTAL				
HYDROCARBONS	mg/L	1.0	2	<1
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	8	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	7
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5

(CONTINUED)

1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5	<5
TRICHLOROFUOROMETHANE	µg/L	<10	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100	<100

SITE 5: FUEL CELL

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	<10	<10	<10
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<50	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	<100	350	<100
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	36	40	33
MANGANESE	µg/L	<50	26	<50
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	<50	59	<50
OILS & GREASES	mg/L	9.7	1.5	2.7
TOTAL HYDROCARBONS	mg/L	<1.0	<1.0	<1.0
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	6	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 6: NON-DESTRUCTIVE INSPECTION SHOP

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	<10	10.2	21
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
COPPER	µg/L	<50	74	<50
IRON	µg/L	<100	1700	270
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	28	23	28
MANGANESE	µg/L	<50	68	<50
MERCURY	µg/L	<0.5	0.6	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	130	230	85
AMMONIA	mg/L	10.0	9.6	4.4
CYANIDE	mg/L	.005	.020	.009
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 7: BUILDING 19

(DUE TO EXTREMELY LOW FLOW, NO SAMPLES WERE TAKEN)

SITE 8: BASE OUTFALL TO CITY

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	36	20.7	<10
BARIUM	µg/L	142	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	5.0	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
COPPER	µg/L	58	<50	<50
IRON	µg/L	1800	550	360
LEAD	µg/L	21	<20	<20
MAGNESIUM	mg/L	60	33	32
MANGANESE	µg/L	140	60	<50
MERCURY	µg/L	0.9	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	200	55	<50
OILS & GREASES	mg/L	44.4	20.6	17.8
TOTAL HYDROCARBONS	mg/L	14.4	2.2	2.9
PHENOLS	µg/L	29.0	21.0	12.0
CYANIDE	mg/L	.011	.010	.005
RESIDUE, TOTAL	mg/L	2,260	1,144	856
RESIDUE, FILTERABLE	mg/L	1,750	938	680
RESIDUE, TOTAL VOLATILE	mg/L	599	290	200
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYLVINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	6	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5

(CONTINUED)

1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 8: BASE OUTFALL TO CITY (CONTINUED)

	UNITS	18 APR			
		18 APR	(DUPLICATE)	21 APR	22 APR
ARSENIC	µg/L	<10	<10	<10	<10
BARIUM	µg/L	<100	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10	<10
CADMIUM	µg/L	<5	6.9	9.6	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50	<50
COPPER	µg/L	<50	<50	<50	<50
IRON	µg/L	<100	<100	343	324
LEAD	µg/L	<20	<20	<20	<20
MAGNESIUM	mg/L	42	43	33	33
MANGANESE	µg/L	<50	<50	<50	<50
MERCURY	µg/L	<0.5	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50	<50
SILVER	µg/L	<5	<5	<5	<5
ZINC	µg/L	<50	<50	<50	54
OILS & GREASES	mg/L	2.2	8.2	5.6	5.6
TOTAL HYDROCARBONS	mg/L	<1.0	<1.0	<1.0	<1.0
PHENOLS	µg/L	21	27	57	43
CYANIDE	mg/L	.009	.007	.011	.009
RESIDUE, TOTAL	mg/L	1,124	1,352	842	843
RESIDUE, FILTERABLE	mg/L	906	1,635	890	1195
RESIDUE, TOTAL VOLATILE	mg/L	318	361	199	227
BENZENE	µg/L	<5	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	6	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5	<5

(CONTINUED)

1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100	<100

(CONTINUED)

SITE 8

	UNITS	RESULTS
ALDRIN	µg/L	<0.05
ALPHA-BHC	µg/L	<0.05
BETA-BHC	µg/L	<0.05
DELTA-BHC	µg/L	<0.05
LINDANE	µg/L	<0.05
CHLORDANE	µg/L	<0.05
DDD	µg/L	<0.1
DDE	µg/L	<0.1
P'P-DDT	µg/L	<0.1
DIELDRIN	µg/L	<0.1
ENDOSULFAN I	µg/L	<0.05
ENDOSULFAN II	µg/L	<0.1
ENDOSULFAN SULFATE	µg/L	<0.1
ENDRIN	µg/L	<0.05
HEPTACHLOR	µg/L	<0.05
HEPTACHLOR EPOXIDE	µg/L	<0.05
TOXAPHENE	µg/L	<5
AROCLOR 1016	µg/L	<1
AROCLOR 1221	µg/L	<2
AROCLOR 1232	µg/L	<1
AROCLOR 1242	µg/L	<1
AROCLOR 1248	µg/L	<1
AROCLOR 1254	µg/L	<1
AROCLOR 1260	µg/L	<1
METHOXYCHLOR	µg/L	<0.5
ENDRIN KETONE	µg/L	<0.1

SITE 9: CORROSION CONTROL SHOP

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	<10	<10	<10
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
CHROMIUM, HEXAVALENT	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	290	230	105
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	33	27	34
MANGANESE	µg/L	<50	<50	<50
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	<50	<50	<50
CYANIDE	mg/L	<.005	.032	.020
OILS & GREASES	mg/L	4.6	1.9	3.2
TOTAL HYDROCARBONS	mg/L	<1.0	<1.0	<1.0
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 10: AVIONICS LAB, ANG & AFR CIVIL ENGINEERING

	UNITS	15 APR	16 APR	17 APR
ARSENIC	µg/L	21	<10	15
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
CHROMIUM, HEXAVALENT	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	540	<100	940
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	13	17	18
MANGANESE	µg/L	<50	<50	54
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	110	70	320
OILS & GREASES	mg/L	32.0	3.2	30.4
TOTAL HYDROCARBONS	mg/L	3.9	1.5	2.9
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYLVINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	<5	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 11: AFR MOTOR POOL

	UNITS	21 APR	22 APR	23 APR
ARSENIC	µg/L	<10	<10	<10
BARIUM	µg/L	<100	<100	<100
BERYLLIUM	µg/L	<10	<10	<10
CADMIUM	µg/L	<5	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50
CHROMIUM, HEXAVALENT	µg/L	<50	<50	<50
COPPER	µg/L	<50	<50	<50
IRON	µg/L	<100	293	<100
LEAD	µg/L	<20	<20	<20
MAGNESIUM	mg/L	42	40	45
MANGANESE	µg/L	<50	102	<50
MERCURY	µg/L	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50
SILVER	µg/L	<5	<5	<5
ZINC	µg/L	<50	59	<50
PHENOLS	µg/L	<10	<10	<10
SURFACTANTS	mg/L	<0.1	<0.1	<0.3
OILS & GREASES	mg/L	0.7	<.3	<.3
TOTAL HYDROCARBONS	mg/L	<1.0	<1.0	<1.0
BENZENE	µg/L	<5	<5	<5
BROMODICHLOROMETHANE	µg/L	<5	<5	<5
BROMOFORM	µg/L	<5	<5	<5
BROMOMETHANE	µg/L	<10	<10	<10
CARBON TETRACHLORIDE	µg/L	<5	<5	<5
CHLOROBENZENE	µg/L	<5	<5	<5
CHLOROETHANE	µg/L	<10	<10	<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10	<10
CHLOROFORM	µg/L	<5	<5	<5
CHLOROMETHANE	µg/L	<10	<10	<10
CHLORODIBROMOMETHANE	µg/L	<5	<5	<5
1,2-DICHLOROBENZENE	µg/L	<5	<5	<5
1,3-DICHLOROBENZENE	µg/L	<5	<5	<5
1,4-DICHLOROBENZENE	µg/L	<5	<5	<5
1,1-DICHLOROETHANE	µg/L	<5	<5	<5
1,2-DICHLOROETHANE	µg/L	<5	<5	<5
1,1-DICHLOROETHENE	µg/L	<5	<5	<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5	<5
1,2-DICHLOROPROPANE	µg/L	<5	<5	<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5	<5
ETHYL BENZENE	µg/L	8	<5	<5
METHYLENE CHLORIDE	µg/L	<5	<5	<5
TETRACHLOROETHYLENE	µg/L	<5	<5	<5
TOLUENE	µg/L	<5	<5	<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5	<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5	<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10	<10
VINYL CHLORIDE	µg/L	<10	<10	<10
TRICHLOROETHYLENE	µg/L	<5	<5	<5
ACROLEIN	µg/L	<100	<100	<100
ACRYLONITRILE	µg/L	<100	<100	<100

SITE 12: AFR CIVIL ENGINEERING COMPLEX

	UNITS	21 APR	22 APR	22 APR*	23 APR
ARSENIC	µg/L	<10	<10	<10	<10
BARIUM	µg/L	<100	<100	<100	<100
BERYLLIUM	µg/L	<100	<10	<10	<10
CADMIUM	µg/L	<5	<5	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50	<50	<50
CHROMIUM, HEXAVALENT	µg/L	<50	<50	<50	<50
COPPER	µg/L	<50	<50	<50	<50
IRON	µg/L	<100	405	395	<100
LEAD	µg/L	<20	<20	<20	<20
MAGNESIUM	mg/L	40	39	39	43
MANGANESE	µg/L	<50	116	113	<50
MERCURY	µg/L	<0.5	<0.5	<0.5	<0.5
NICKEL	µg/L	<50	<50	<50	<50
SILVER	µg/L	<5	<5	<5	<5
ZINC	µg/L	<50	<50	<50	<50
CYANIDE	mg/L	.005	<.005	<.005	<.005
OILS & GREASES	mg/L	<.3	0.7		1.1
TOTAL HYDROCARBONS	mg/L	<1.0	<1.0		<1.0
BENZENE	µg/L	<5	<5		<5
BROMODICHLOROMETHANE	µg/L	<5	<5		<5
BROMOFORM	µg/L	<5	<5		<5
BROMOMETHANE	µg/L	<10	<10		<10
CARBON TETRACHLORIDE	µg/L	<5	<5		<5
CHLORO BENZENE	µg/L	<5	<5		<5
CHLOROETHANE	µg/L	<10	<10		<10
2-CHLOROETHYL VINYL ETHER	µg/L	<10	<10		<10
CHLOROFORM	µg/L	<5	<5		<5
CHLOROMETHANE	µg/L	<10	<10		<10
CHLORODIBROMOMETHANE	µg/L	<5	<5		<5
1,2-DICHLORO BENZENE	µg/L	<5	<5		<5
1,3-DICHLORO BENZENE	µg/L	<5	<5		<5
1,4-DICHLORO BENZENE	µg/L	<5	<5		<5
1,1-DICHLOROETHANE	µg/L	<5	<5		<5
1,2-DICHLOROETHANE	µg/L	<5	<5		<5
1,1-DICHLOROETHENE	µg/L	<5	<5		<5
trans-1,2-DICHLOROETHENE	µg/L	<5	<5		<5
1,2-DICHLOROPROPANE	µg/L	<5	<5		<5
trans-1,3-DICHLOROPROPENE	µg/L	<5	<5		<5
cis-1,3-DICHLOROPROPENE	µg/L	<5	<5		<5
ETHYL BENZENE	µg/L	9	<5		<5
METHYLENE CHLORIDE	µg/L	<5	<5		<5
TETRACHLOROETHYLENE	µg/L	<5	<5		<5
TOLUENE	µg/L	<5	<5		<5
1,1,1-TRICHLOROETHANE	µg/L	<5	<5		<5
1,1,2-TRICHLOROETHANE	µg/L	<5	<5		<5
TRICHLOROFLUOROMETHANE	µg/L	<10	<10		<10
VINYL CHLORIDE	µg/L	<10	<10		<10
TRICHLOROETHYLENE	µg/L	<5	<5		<5
ACROLEIN	µg/L	<100	<100		<100
ACRYLONITRILE	µg/L	<100	<100		<100

*INDICATES DUPLICATE SAMPLE

APPENDIX F
QUALITY ASSURANCE/QUALITY CONTROL

EQUIPMENT BLANK

ARSENIC	µg/L	<10
BARIUM	µg/L	<100
BERYLLIUM	µg/L	<10
CADMIUM	µg/L	<5
CHROMIUM, TOTAL	µg/L	<50
CHROMIUM, HEXAVALENT	µg/L	<50
COPPER	µg/L	<50
IRON	µg/L	<100
LEAD	µg/L	<20
MAGNESIUM	µg/L	<1.0
MANGANESE	µg/L	<50
MERCURY	µg/L	<0.5
NICKEL	µg/L	<50
SILVER	µg/L	<5
ZINC	µg/L	<50
CYANIDE	mg/L	<.005
PHENOLS	µg/L	<10
OIL & GREASE	mg/L	<.3
TOTAL HYDROCARBONS	mg/L	<1.0

REAGENT BLANKS

ARSENIC	µg/L	<10
BARIUM	µg/L	<100
BERYLLIUM	µg/L	<10
CADMIUM	µg/L	<5
CHROMIUM, TOTAL	µg/L	<50
COPPER	µg/L	<50
IRON	µg/L	<100
LEAD	µg/L	<20
MAGNESIUM	µg/L	<1.0
MANGANESE	µg/L	<50
MERCURY	µg/L	<0.5
NICKEL	µg/L	<50
SILVER	µg/L	<5
ZINC	µg/L	<50
AMMONIA	mg/L	<.2
CYANIDE	mg/L	<.005

PITCHER BLANKS

		#1	#2
ARSENIC	µg/L	<10	<10
BARIUM	µg/L	<100	<100
BERYLLIUM	µg/L	<10	<10
CADMIUM	µg/L	<5	<5
CHROMIUM, TOTAL	µg/L	<50	<50
COPPER	µg/L	<50	<50
IRON	µg/L	<100	<100
LEAD	µg/L	<20	<20
MAGNESIUM	µg/L	<1.0	<1.0
MANGANESE	µg/L	<50	<50
MERCURY	µg/L	<0.5	<0.5
NICKEL	µg/L	<50	<50
SILVER	µg/L	<5	<5
ZINC	µg/L	<50	<50

SPIKES				
	UNITS	Reported Day 1	Reported Day 2	Advisory Range
ARSENIC	µg/L	29	34.1	43-67
BARIUM	µg/L	100	<100	184-226
BERYLLIUM	µg/L	86	87	71-103
CADMIUM	µg/L	117	116	59-85
CROMIUM, TOTAL	µg/L	90	94	273-393
COPPER	µg/L	85	98	285-411
IRON	µg/L	240	230	435-625
LEAD	µg/L	94	99	121-175
MANGANESE	µg/L	127	132	212-306
MERCURY	µg/L	3.16	2.34	4.2-7.0
NICKEL	µg/L	126	141	370-533
SILVER	µg/L	59	67	87-125
ZINC	µg/L	203	203	137-197
CYANIDE	mg/L	0.18	0.19	0.088-0.154
PHENOL	mg/L	0.063	0.066	0.051-0.083

ARMSTRONG LABORATORY INORGANIC ANALYSIS IN-HOUSE QA/QC DATA

CYANIDE TOTAL

O'HARE, IL

<u>BASE SAMPLE NUMBER</u>	<u>TEST METHOD</u>	<u>SAMPLE RESULTS</u>	<u>ISQC RESULTS</u>	<u>DUPLICATE RESULTS</u>	<u>SPIKE RESULTS</u>
CN920811	EPA 335.3	.011 mg/L	107%	.011=0% dev	103%
CN920817	EPA 335.3	.005 mg/L	107%	n/a	103%
CN920831	EPA 335.3	.009 mg/L	107%	n/a	103%
CN920837	EPA 335.3	<.005 mg/L	107%	n/a	103%
CN920838	EPA 335.3	<.005 mg/L	107%	n/a	103%
CN920839	EPA 335.3	.009 mg/L	107%	n/a	103%
CN920851	EPA 335.3	<.005 mg/L	107%	n/a	103%
GN920856	EPA 335.3	.18 mg/L	107%	n/a	103%
GN920857	EPA 335.3	.19 mg/L	107%	n/a	103%

Date Samples Rec'd 920428

Date Samples Comp 920430

AL/OEA plots three significant quality control parameters: spikes, duplicates, and In Section Quality Controls (ISQC) samples. The standard deviation for the spikes and duplicate samples is +/- 3%.

ISQC samples are samples which have a known value and are analyzed with samples of unknown value. ISQC samples are used to determine the precision of accuracy of an analytical procedure.

The above chart indicates an ISQC value of 107% for the series of samples analyzed on April 30, 1992. This value is well within the 80 to 120% criteria set by AL/OEA.

APPENDIX G
STANDARDS FOR VOLATILE ORGANIC CHEMICALS

STANDARDS FOR VOLATILE ORGANIC CHEMICALS

<u>EPA METHOD 624</u>	<u>QUALITY CRITERIA FOR WATER</u>	<u>SDWA STANDARD</u>	<u>PRETREATMENT STANDARD*</u>
BROMODICHLOROMETHANE	--	100	--
BROMOFORM	--	100	--
CARBON TETRACHLORIDE	35,200	5	142
CHLORO BENZENE	250	100	142
CHLOROFORM	--	100	--
CHLOROETHANE	--	--	110
CHLOROMETHANE	11,000	--	--
CHLORODIBROMOMETHANE	--	100	--
1,2-DICHLORO BENZENE	763	600	196
1,3-DICHLORO BENZENE	1,120	600	142
1,4-DICHLORO BENZENE	1,120	75	142
1,2-DICHLOROETHANE	20	5	180
1,1-DICHLOROETHANE	--	--	22
1,1-DICHLOROETHENE	11,600	7	22
trans-1,2-DICHLOROETHENE	11,600	100	25
1,2-DICHLOROPROPANE	5,700	5	196
cis-1,3-DICHLOROPROPENE	244	--	196
trans-1,3-DICHLOROPROPENE	244	--	196
METHYLENE CHLORIDE	11,000	--	36
1,1,2,2-TETRACHLOROETHANE	2,400	--	--
TETRACHLOROETHYLENE	840	5	52
1,1,1-TRICHLOROETHANE	18,000	200	22
TRICHLOROTHYLENE	21,000	5	26
TRICHLOROFLUOROMETHANE	11,000	--	--
VINYL CHLORIDE	--	2	97
BROMOMETHANE	11,000	--	--
ETHYLBENZENE	32,000	700	142
TOLUENE	17,500	1,000	28
BENZENE	700	5	57
ACROLEIN	68	--	--
ACRYLONITRILE	7,500	--	--

All concentrations are in $\mu\text{g/L}$.

* Based on Pretreatment Standards for Organic Chemical Manufacturing.

APPENDIX H

TYPICAL DISCHARGE LIMITATIONS FOR VARIOUS WASTE SOURCES

AIRCRAFT WASHRACK WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
BOD	100-2,500
COD	700-2,500
TOC	130-1,200
Oil and Grease	2-55
Cadmium	0-0.2
Chromium (total)	0-4
Phenol	0-210
Methylene Chloride	Trace
Surfactants	0-2
Ammonia Nitrogen	80
Suspended Solids	50-90

MOTORPOOL WASHRACK WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
Total Solids	570-12,900
COD	64-3,400
TOC	24-1,700
Oil and Grease	20-8,700
Surfactants	0-2

BATTERY SHOP WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
Lead	14.9
pH	7.5*
Copper	3.4
Iron	15.0
Zinc	21.5

*pH units rather than mg/l

NDI WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
COD	1,510
BOD	1,110
Ammonia-Nitrogen	74
Suspended Solids	560

PHOTO PROCESSING WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
COD	37-6,700
TOC	5-140
Cyanide	<0.01-12.5
Silver	<0.1-1.11
pH	4.3-4.4*
Boron	7.0-7.5

*pH units rather than mg/l

**TYPICAL DISCHARGE LIMITATIONS FOR
VARIOUS WASTE SOURCES¹**

WASTE SOURCE	PARAMETER	REFERENCE	TYPICAL EFFLUENT LIMITATION
Air Force Industrial ₂ Facilities	Cadmium	40 CFR 433	0.69 mg/l
	Chromium	40 CFR 433	2.77 mg/l
	Copper	40 CFR 433	3.38 mg/l
	Lead	40 CFR 433	0.69 mg/l
	Nickel	40 CFR 433	3.98 mg/l
	Silver	40 CFR 433	0.43 mg/l
	Zinc	40 CFR 433	2.61 mg/l
	Cyanide	40 CFR 433	1.20 mg/l
	TTO	40 CFR 433	2.13 mg/l
	pH	40 CFR 403	5.0
Hospital Facilities	BOD	40 CFR 460	41.0 ³
	TSS	40 CFR 460	55.6 ³
	pH	40 CFR 460	6.0-9.0
Photographic and NDI Facilities	Silver	40 CFR 459	0.14 ⁴
	Cyanide	40 CFR 459	0.18 ⁴
	pH	40 CFR 459	6.0-9.0
Sewage Treatment Plant ⁵	BOD	OEHL	20-30 mg/l
	COD	OEHL	125.00 mg/l
	TSS	OEHL	20-30 mg/l
	Oil and Grease	OEHL	15.00 mg/l
	Phosphorus	OEHL	8.00 mg/l
	Ammonia as N	OEHL	14.00 mg/l
	Phenols	OEHL	50-500 µg/l
	MBAS	OEHL	4.00 mg/l
	Fecal Coliforms	OEHL	200 per 100 ml

¹ Pretreatment standards (40 CFR 403-471) apply only to industrial facilities discharging to publicly owned treatment works.

² Includes all facilities except (NDI), hospital and photolab.

³ Metric units (kilograms per 1,000 occupied beds)

⁴ Metric units (kilograms per 1,000 m square of product)

⁵ Typical NPDES effluent limitations for sewage treatment plants located on Air Force installations.

Ref: AFOEHL Sampling Guide, March 1989

APPENDIX I
pH AND TEMPERATURE DATA

pH AND TEMPERATURE

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6
SITE 1	9°/6.4	14°/6.5	10°/6.4			
SITE 2	11°/6.4	10°/6.4	11°/6.2			
SITE 3	14°/6.4	18°/6.8	12°/6.8			
SITE 4	11°/6.4	9°/6.2	10°/6.4			
SITE 5	5°/6.8	12°/7.0	9°/6.8			
SITE 6	8°/6.8	11°/7.2	10°/7.0			
SITE 7	---	---	---			
SITE 8	11°/6.8	11°/6.4	11°/6.0	11°/6.0	11°/6.7	10°/6.4
SITE 9	9°/6.2	8°/6.6	9°/6.8			
SITE 10	10°/6.5	12°/6.8	10°/6.8			
SITE 11	10°/6.5	10°/6.3	8°/6.8			
SITE 12	10°/6.8	9°/6.8	9°/6.4			

APPENDIX J
OIL/WATER SEPARATOR CONTRACT EXAMPLE



ENVIRONMENTAL MONITORING AND TECHNOLOGIES, INC.

8100 North Austin Avenue
Morton Grove, Illinois 60053-3203
708/967-6666
FAX: 708/967-6735

LABORATORY REPORT

33948

SI-Tech Industries, Inc.
7700 West 88th St.
Bridgeview, IL 60455

Report Date: 3/23/92
Sample received: 3/19/92

Project Name: U.S. Air Force Reserve
928 Tactical Air Lift

Sample Description: Composite of Oil & Water Separators
Sample No: 16823

Compounds	Concentration Found In		Adjusted Concentration	Method Detection Limit (MDL)	Regulatory Limit
	Sample	Blank			
1. Benzene	<0.25	<0.01	<0.25	0.01	0.50
2. Carbon Tetrachloride	<0.25	<0.01	<0.25	0.01	0.50
3. Chlorobenzene	<50.0	<0.01	<50.0	0.01	100.00
4. Chloroform	<3.0	<0.01	<3.0	0.01	6.00
5. o-Cresol	<100.0	<0.01	<100.0	0.01	200.00
6. m-Cresol	<100.0	<0.01	<100.0	0.01	200.00
7. p-Cresol	<100.0	<0.01	<100.0	0.01	200.00
Total Cresol	<100.0	<0.01	<100.0	0.01	200.00
8. 1,4-Dichlorobenzene	<3.75	<0.01	<3.75	0.01	7.50
9. 1,2-Dichloroethane	<0.25	<0.01	<0.25	0.01	0.50
10. 1,1-Dichloroethene	<0.35	<0.01	<0.35	0.01	0.700
11. 2,4-Dinitrotoluene	<0.07	<0.01	<0.07	0.01	0.13
12. Hexachlorobenzene	<0.07	<0.01	<0.07	0.01	0.13
13. Hexachloro-1,3-butadiene	<0.25	<0.01	<0.25	0.01	0.50
14. Hexachloroethane	<1.50	<0.01	<1.50	0.01	3.00
15. Methyl Ethyl Ketone	<100.0	<0.01	<100.0	0.01	200.00
16. Nitrobenzene	<1.00	<0.01	<1.00	0.01	2.00
17. Pentachlorophenol	<50.00	<0.01	<50.0	0.01	100.00
18. Pyridine	<2.50	<0.01	<2.50	0.01	5.00
19. Tetrachloroethylene	<0.35	<0.01	<0.35	0.01	0.70
20. Trichloroethylene	<0.25	<0.01	<0.25	0.01	0.50
21. 2,4,5-Trichlorophenol	<200.00	<0.01	<200.00	0.01	400.00
22. 2,4,6-Trichlorophenol	<1.00	<0.01	<1.00	0.01	2.00
23. Vinyl Chloride	<0.10	<0.01	<0.10	0.01	0.20

All results expressed as ppm unless otherwise indicated.

Methods performed according to SW-846, "Test methods for Evaluating Solid Waste".

Analysis performed on Extract from TCLP.

Leah E. Zure

APPENDIX K
BOD RESULTS



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Midwest, Inc.
Bartlett Division
850 West Bartlett Road
Bartlett, IL 60103

Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Doris Fender
AIR FORCE RESERVE FACILITY
928 Air Lift Group/SGPB
O'Hare Fld/Bldg 504 Rm 156
Chicago, IL 60666

05/04/1992

Sample No.: 163559

Job No.: 92.1928

Sample Description: Outfall
O'Hare

Date Taken: 04/23/1992
Time Taken: 08:20
IEPA Cert. No. 100221

Date Received: 04/23/1992
Time Received:
WDNR Cert. No. 999447130

BOD, Five Day

84.

mg/L

P.O. # F1160392W 4130
22 Apr 92

Kelly Jones

Kelly Jones
Project Manager